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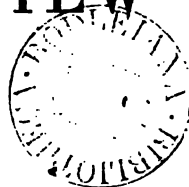
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THE
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MEDICAL REVIEW
OR
QUARTERLY JOURNAL
OF
PRACTICAL MEDICINE AND SURGERY



EDITED BY
JOHN FORBES M.D. F.R.S.
AND
JOHN CONOLLY M.D.
EDITORS OF THE CYCLOPEDIA OF PRACTICAL MEDICINE

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d'Analyses. Par F. V. RASPAIL.—*Paris*, 1837. Tomes II. 8vo. pp. 1257.

New System of Vegetable Physiology and Botany, founded on the Modes of Observation which have been developed in the new System of Organic Chemistry; with an Atlas of 60 analytical Plates. By F. V. RASPAIL.—*Paris*, 1837. Two Vols. 8vo. pp. 1257.

THE appearance of five new treatises, within little more than twelve months, bearing on the study of Vegetable Physiology, besides a new and much improved edition of a former work, is an indication that the subject is now exciting a much more general attention than has hitherto been paid to it. Botanists have too frequently overlooked, in their eager pursuit of the systematic part of the science, the investigation of the structure and functions of the organs whose external form and arrangement afford them the means of classification. The study of the affinities of plants, however, upon which the Natural System is founded, requires an intimate acquaintance, not only with organography, or the internal as well as external conformation of their parts, but also with morphology, the department which treats of the laws regulating the arrangement and variation of organs, and which occupies in botany a station corresponding to that of philosophical anatomy in the study of the animal kingdom. The investigation of the elementary structure of organs naturally leads to the consideration of their functions; and hence arises the study of vegetable physiology, to prosecute which with success requires a correct and extensive knowledge of the two former departments, as well as some acquaintance with systematic botany.

Each of the treatises before us, with the exception of the last, is well fitted to impart much correct information on these subjects, which cannot but be interesting to the animal physiologist who takes an extended view of his science. The Introduction to Botany, by Dr. Lindley, is certainly the most valuable work of the kind in our language, incorporating a great amount of original observations with a judicious selection of the facts and opinions brought forwards by other authors. The department of Organography is very fully and ably treated of; but the division appropriated to Physiology appears to have been somewhat curtailed, many subjects of a highly interesting nature being left untouched. A considerable portion of the book is occupied with the explanation of terms used in systematic botany, and with rules for describing and naming plants, which we should like to see transferred to a separate volume, and their place in the present one occupied by an extension of the portion devoted to physiology, the arrangement of which, as it stands at present, we think capable of much improvement. It is scarcely possible, however, to praise too highly the mode in which the greatest part of the work is executed: the thorough acquaintance with his subject manifested by the author, and the facility with which he communicates his knowledge to others, render his explanations, even of the more abstruse points, easy to be comprehended; whilst the clearness and candour with which he displays the arguments on both sides of a disputed question incline us to accord, in almost all instances, with his opinion. The Treatise on Botany in the Library of Useful Knowledge, by the same author, is an excellent outline of vegetable anatomy and physiology, and

we can strongly recommend it to such of our readers as are commencing the study of these sciences.

The work of Professor Henslow, being written for a popular series, is more adapted to the general than to the medical reader. It contains an extremely clear outline of many departments of the science, and forms an excellent introduction to the study of botany; but it is deficient in those higher and more general views which are so interesting to the advanced student. It cannot be doubted, from the author's high reputation as a botanist, that he could have introduced more of novelty in his illustrations; but any deficiency in this respect is counterbalanced by the lucid manner in which he has stated his views on several disputed questions of great interest, some of which we shall hereafter notice more particularly.

The Introduction of M. Alphonse De Candolle is principally an abridgment of his father's "*Organographie*" and "*Physiologie Végétale*," brought down to the date of its publication by the addition of new discoveries: it embraces a much more extensive range of subjects than either of the works already mentioned; and many parts of it may be read with great advantage by those who are already acquainted with them. Its first volume is devoted to anatomy and physiology, with the theory of classification; the second contains the characters of the natural families, with an excellent outline of botanical geography and of fossil botany, and a short but interesting history of botany.

The Treatise on Vegetable Physiology, by L. C. Treviranus, is the most comprehensive and elaborate, on this particular department, of any of the works before us. It contains not only his own opinions and researches, most of which have been already published in the *Zeitschrift für Physiologie*; but also a very complete abstract of the views of all eminent writers on each disputed point; and it will consequently be of great value to those who wish to enter fully into the investigation of the more obscure and intricate departments of vegetable physiology. We are glad to see so large a portion of the work devoted to the consideration of the Cryptogamia, which have been comparatively neglected by most English and French writers on Physiology. There are many valuable observations scattered through the works of those who have devoted themselves to the classification of this interesting division of the vegetable kingdom, which have not yet been properly incorporated; and, in proof of the degree in which investigations into the structure and functions of the Cellulares may assist us in the decision of several doubtful points in the physiology of vascular plants, we may refer to the beautiful discoveries made by Mirbel in his researches into the structure and mode of growth of the *Marchantia Polymorpha*.*

The volume of the *Physiologie der Gewächse* which has already appeared embraces only the functions of Nutrition; and, if those of Reproduction are treated of in the same elaborate manner, the work will be a valuable addition to those already existing. We certainly differ from the author in many of the opinions which he expresses; but the authorities on both sides are very fairly quoted, and much research is

* *Nouv. Annales du Museum*, tom. ii.

displayed in the abundance of references, which are of great value to the advanced student.

All the works which we have hitherto noticed profess to give an outline, more or less completely filled up, of the present state of the science of which they treat. That of M. Raspail has a far different aim; the object of the author being to demonstrate the fallacy of the usually received doctrines of vegetable anatomy and physiology, as well as of classification, and to prove that every observation hitherto made, which does not correspond with his own theories, has been falsified either through ignorance or design. M. Raspail was previously well known to us as possessing a remarkable degree of acuteness and ingenuity, as well as of originality of thought: his *System of Organic Chemistry* contains many observations of great value, mixed however with much that is erroneous, and which we hope to see retracted by the author in the forthcoming edition of his work. We applied ourselves to the perusal of the present volumes, therefore, with considerable expectations of the novelty and ingenuity of their contents; and in this respect we have certainly not been disappointed, since it appears to be the plan of the author to deny every fact, and to controvert every opinion, which is maintained by authors of established reputation, especially if they happen to belong to the Academy, his attacks on which are marked with a degree of acrimony and violence totally unworthy of the character of a man of science. In his eager pursuit of analogies and generalizations, the author has, we think, frequently allowed himself to be led astray from facts; and he has evidently, in many cases, resorted to observation with the view rather of confirming his preconceived theories than of employing them as the basis on which alone they should be constructed. In this mode of philosophising, he reminds us of the *savant* mentioned by Condillac, who thought that he had discovered a principle which was adequate to explain all the phenomena of chemistry; but, when he communicated his discovery to a skilful chemist, he was informed that the facts were unfortunately the reverse of what he had supposed. "Tell me what they are," was the philosopher's reply, "that I may explain them by my theory." The real or affected ignorance of the investigations of others, which is displayed by M. Raspail, is quite on a par with the supreme importance which he attaches to his own. Thus, in denying the existence of apertures in the Stomata, (which he regards simply as a modification of glands,) he takes no notice of the beautiful dissections of Ad. Brongniart, or of the remarkably complicated form in which Mirbel has shown that these organs exist in the Marchantia. Of neither could he be really ignorant, and his neglect of them appears to us to be readily explicable by the fact that his theory requires that the cuticle should be destitute of perforations.

Our criticism may appear harsh, but we can assure our readers that it is deserved. We are sorry to see that a man of M. Raspail's unquestioned ingenuity should be so far carried away by his zeal for novelty as to neglect that patient enquiry, as well as that freedom from prejudice, which are essential for the establishment of truth; and we do not consider it surprising that no one will give that implicit credit to his observations which he somewhat imperatively demands, but which is due only to

men of higher reputation for accuracy. Were we to review all the passages which we have marked for special notice, our article would probably extend beyond the compass of M. Raspail's volumes; and we must therefore refer our readers to the work itself, in which they will find much to amuse as well as to interest, reserving a few of the fundamental propositions, however, for future consideration. The only quotation which we shall make is one which will afford a fair idea of the style and spirit which pervade the work; and we shall, contrary to our wont, give it in the original, as it would lose much of its point by translation.

"La rigueur mathématique, avec laquelle s'enchainent les théorèmes de la démonstration de la deuxième partie, doit rappeler à la critique qu'elle ne doit rien écrire sans avoir médité au moins quelques jours: nous avons médité, nous, pendant douze années, et les jours de la plupart de ces années ont eu plus de vingt-quatre heures pour nous."

We should be glad to see the science of physiology based upon a more extensive generalization of the phenomena of vitality than has usually been thought necessary. The study of comparative anatomy is now recognized as the surest means of arriving at accurate results on many disputed questions; since the different forms of animals may be regarded, to use the language of Cuvier, as "so many kinds of experiments ready prepared by Nature, who adds to or deducts from each of them different parts, just as we might wish to do in our laboratories, showing us herself at the same time their various results." Vegetables present us with a greater simplification of the vital functions than is afforded by the lowest animal; since all the changes necessary to the support of the individual and the continuance of the species are performed without the influence or interference of those powers which are possessed, in a greater or less degree, by the whole animal kingdom. Hence, the physiologist may advantageously resort to the study of vegetable life for the explanation of many of the proximate causes of those phenomena which are complicated in the higher forms of organized beings by so great a variety of secondary influences. In many cases, too, he has the means of investigating in plants the changes produced by various agents on their structure and functions, with much greater facility than when studying the processes of the animal economy; and he has the power of more clearly distinguishing the effects of different vital stimuli.

The science of general physiology has, we regret to say, received little attention in this country, and we cannot point to any original work in our own language which professes to treat of it. The translation of the elaborate Comparative Physiology of Tiedemann has in part filled up the void; but this treatise is less fitted to impress on the mind of the student comprehensive views of the subjects which it discusses, than to present to those by whom they have already been acquired a store of facts which may be used in confirmation or illustration of them. In the hope of in some degree supplying to our readers the deficiency which we have ourselves felt, and with the desire of inducing a portion of them to follow up a course of investigation alike interesting and profitable, we shall devote the remainder of the present article to an outline of those departments of the structure and functions of vegetables, the knowledge of which is most important to the animal physiologist.

On the subject of the distinction between the two great kingdoms of

organized nature, we fully partake of the opinion expressed by Professor Henslow, that *structure* presents us with no diagnostic mark by which we can separate the lower and most approximated groups of both from each other. "Perhaps," he remarks, "until the contrary shall have been proved, we may consider the addition of *sensibility* to the living principle as the characteristic property of animals; a quality by which the individual is rendered conscious of its existence or of its wants, and by which it is induced to satisfy those wants by some act of volition." (*Principles*, p. 8.)

The power of locomotion has usually been regarded as the distinction between certain groups of aquatic animals and vegetables; and the difficulty of ascertaining whether such motions are voluntary or caused by accidental circumstances has led some of the German naturalists to describe beings as plants at one period of their existence, and animals at another. We cannot doubt that there is a definite boundary to each kingdom, although the imperfection of our means of observation will not always enable us to perceive it.

The *primary tissues* of vegetables offer an interesting object of study to the general anatomist; and the difference of opinion which still exists among botanists as to the precise nature of some of them, and their mode of formation, shows that there is still much room for investigation. Indeed, an examination into their nature demands not only considerable manual skill and dexterity in the use of the microscope, but, what is even more important, a perfect readiness to give up preconceived notions when they are inconsistent with observation, and a determination to consider nothing as proved until every mode of investigation has been employed with the same result. Every one who has examined doubtful objects by a high magnifying power must be aware how much is often left to the imagination of the observer; and it is not difficult to account for the great discrepancy which exists in the statements of animal as well as vegetable anatomists, all of whom, we have no doubt, conscientiously believed that they saw what they have described.

The views of Dr. Lindley on the subject of the *primary tissues* appear to us more definite and correct than those of any other writer, and we may therefore refer our readers to the statements contained in his Introduction to Botany, with which our own observations in general coincide. Those who feel an interest in general anatomy may also peruse with great advantage Mr. Slack's admirable paper on this subject,* which is accompanied with the best delineation of the elementary structures with which we are acquainted. From his researches, added to that of other observers, it appears that all the varied forms of vegetable tissue may be regarded as taking their origin from the simple cell; and this fact has an interesting connexion with the view now generally taken of the animal tissues, according to which they may be all reduced to the cellular, muscular, and nervous; all the parts which minister to organic life being essentially composed of the first of these and its numerous modifications. The different forms of vegetable tissue are usually classed under three general divisions, the *cellular*, *woody*, and *vascular*. The first of these is composed of adherent vesicles, more or less regular in form, usually

* Transactions of the Society of Arts, vol. xlix.

containing fluid, and sometimes having a spiral fibre generated in their interior. Woody tissue may be regarded as a very simple modification of the cellular, the vesicles being much elongated, and their sides possessing greater tenuity, combined with greater strength. The transitions from the one form to the other are almost imperceptible. *Vascular tissue* also consists of elongated cells, but these possess a spiral fibre in their interior, which appears destined to prevent the obliteration of the canal by pressure, when only filled with air; and in this respect it bears a remarkable analogy with the corresponding structure in the tracheæ of insects. We regard it as fully proved that the perfect *spiral vessels* are in some way connected with the respiratory system, being always found to contain air; but the various forms of *ducts*, produced by the partial rupture of the fibre, undoubtedly minister to the conveyance of fluid. It is probable that fluid may also be conveyed by *intercellular passages*; but we can by no means agree with M. De Candolle in the importance which he attaches to these canals in the economy of the plant, unless we are to regard the *vital circulation* of Schultz as taking place in them. We agree rather with Dr. Lindley in considering the *dotted ducts* as the principal means for the passage of the sap along the stem in most vegetables; and we generally accord with him, also, in respect to the cellular origin of these canals, though we think that some of Mr. Slack's observations render it probable that they may be occasionally modifications of spirally formed ducts.

With regard to the mode in which the vesicles of the different tissues are generated, little is certainly known. M. Raspail is of opinion that the membrane forming the inner lining of every vesicle is itself composed of other cellules in a rudimentary state, and that, when these are stimulated to development by a process analogous to that of impregnation, (the contact of male and female cellules,) new vesicles are formed within the old one, except when vessels are produced which are developed externally. Starting from this position, he gives a very plausible explanation of the formation of the trunk, leaves, flowers, and, in short, all the organs of the plant, each of which he regards as reducible to the type of a simple cell capable of generating others in its interior; and any cell possessed of this power is therefore supposed capable of producing any organ, if placed in circumstances fitting for its development. (§ 485.) We by no means wish to deny *in toto* the statements of M. Raspail; but we are confident that he is not arguing upon a sure foundation when he maintains that every new vesicle of cellular tissue is developed from the interior of a parent cell, like ovules in an ovary; since all the observations which have been made on the early development of the Cryptogamia concur in this, that new vesicles are added to the extremity of old ones, as any one may distinctly see in the Chara, and as Mirbel has demonstrated in his admirable memoir on the Marchantia. According to M. Raspail, every generating cell is composed of an external colourless envelope, and a second layer, composed of green globules, arranged in spirals which are the rudiments of the undeveloped cells. When the parent cell forms an entire organ by the development of these cells, and of their offspring, it is the external membrane which forms the general cuticle. M. Raspail has evidently generalized hastily on this subject from a few observations, and we cannot regard his doctrines as capable

of universal application, although they may have some foundation in truth.

It is in the individual cells that the curious circulation of fluid takes place which was described a century ago by Corti, and to which the attention of botanists has been more recently directed by Amici. This phenomenon is best observed in the very elongated cells of *Chara* and *Nitella*, but it has also been witnessed in the transparent parts, especially the hairs, of many vascular plants, both terrestrial and aquatic; and it may be considered as probably existing in all cells at some period of their growth, being apparently connected with the functions of nutrition. It has therefore no analogy with the general circulation of animals; but we may derive an inference from it with regard to the possibility of the motion of fluid without any evident organ of impulsion.

It would not be difficult to show that many of the laws of organic development which have been suggested by the study of animal structures derive additional confirmation from their application to the vegetable kingdom. The botanist can point to the endless varieties of appearance and function assumed by the leaf as a striking illustration of the doctrine of unity of type; and the reduction of all the parts of the flower to the same elementary form by the rigorous application of the laws of morphology, affords a beautiful example of the principles of analogy. The higher forms of vegetables, like those of animals, pass, during their development, through a series of stages in which the structure of each organ bears considerable analogy with that which is permanent in some inferior beings. Thus, the embryonic vesicle, which is the rudiment of a vascular plant, apparently differs little in structure from the simple cell which constitutes the lowest form of cryptogamic vegetation; but the latter, as soon as it is formed, is capable of maintaining an independent existence, and of reproducing its species; whilst the former derives from nutriment previously assimilated by its parent the materials for the commencement of its development in the interior of the ovule, and cannot continue to grow by its own unassisted power until the rudiments of its complicated nutrient apparatus have been evolved. This *germinal vesicle* is filled with a whitish fluid, and is placed in the midst of the pulpy mass which constitutes the bulk of the ovule before impregnation. It seems at first to consist of nothing but inucus, but it gradually becomes firmer in texture, and absorbs from the tissue around it, increasing in size so as to fill up the whole or a large part of the ovule. Still, however, it possesses a supply of nutriment stored up in its own cotyledons, or in the albumen, which may properly be compared to the yolk-bag of the eggs of birds. This is its state at the period of the maturity of the seed, and thus it remains until excited by external stimuli to germinate, in which process a large quantity of carbonic acid is disengaged. Up to this time, it consists of cellular tissue and its simpler modifications; and, in structure, habits, and mode of existence, may be regarded as bearing a strong analogy with the lower cellular plants, especially the fungi, which, like it, deteriorate the air by the formation of carbonic acid, and, like it, also thrive best when well supplied with moisture and protected from light. As soon, however, as the plumula has elevated itself above the surface, and the cotyledons have acquired a green colour, the young

plant begins to form woody tissue, but its vascular system is still imperfect. In this stage of its growth it may be regarded as corresponding with the mosses or Hepaticæ; and the presence of stomata on its cuticle would remind us of a similar structure in the curious *Marchantia polymorpha*. In a short time the true leaves are evolved, which repeat in a much more perfect manner the functions previously performed by the cotyledons; and the plant, having now exhausted the store of nutriment provided for it, is totally dependent upon itself for support. The stem now becomes provided with a regular fibro-vascular system, and the plant may be considered as having arrived at the level of the ferns: we must wait for full maturity before the reproductive organs are evolved, the appearance of which marks the highest type of vegetable organization.

Having thus attempted to point out a few of the transitory resemblances exhibited by the more highly organized plants to the permanent states of the lower, it would be interesting, did our space permit, to attempt to apply to the vegetable kingdom Mr. Macleay's ingenious principle, that in the lowest and most imperfect groups are sketched out the forms which are afterwards to be adopted in the higher divisions.* It would not be difficult to trace in the ever-varying forms of the *Protophyta* the outlines of the characters of the four remaining divisions of the vegetable kingdom; but on this subject we cannot at present dilate, and shall content ourselves with quoting an observation of that distinguished cryptogamist, M. Agardh: "*Inter inferiores formas superiores sæpe efflorescunt, sed rudes et veluti experimenta; sic anticipationes formæ perfectionis in plantis inferioribus non raro obveniant; ut etiam in plantis superioribus regressus ad formam imperfectiorem.*"†

Amongst other general analogies between the animal and vegetable kingdoms, we must not overlook that of their chemical composition. Although carbon may be represented as the characteristic element of plants, as nitrogen of animals, it is now well known that the latter element occurs much more frequently in plants than was formerly supposed; and it is interesting to remark, that the vegetable principle into which it enters most largely is *fungin*, a substance confined to one of the groups which approaches nearest to animals in structure. We may also observe, that the mineral ingredients assisting in the formation of the organs of support in the lower animals are those which are usually found in plants. Thus, carbonate of lime, which is most frequent in vegetables, is most universally diffused through the hard parts of animals, constituting the whole of the skeletons of the massive *Polypifera*, the *Mollusca*, and forming a part of those of the *Articulata* and *Vertebrata*. In like manner, *silicex*, which is the consolidating ingredient in the reticulated skeletons of the lower *Porifera*, the class of animals most allied to plants, also occurs, though sparingly, among the *Algæ*, and enters very abundantly into the structure of the higher plants, especially the *Gramineæ*. All the mineral deposits which we find in plants have, like those in the lower animals, a distinctly crystalline structure; and some of these substances are so insoluble as to be capable of being artificially crystallized by ordinary means. M. Becquerel, however, has succeeded in crystall-

* *Horæ Entomologicæ*, p. 223.

† *Aphorismi Botanici*, Part V. Lundæ, 1819.

lizing silix and the carbonate and oxalate of lime, by means of a long-continued and feeble current of galvanic electricity; and still more striking results of a like kind have been since obtained by Mr. Crosse,* which, we doubt not, were original on his part, but which had been anticipated, in great measure at least, by the experiments of the former gentlemen. It is not, perhaps, unreasonable to suppose that it is by similar means that the process is effected in plants, since a considerable quantity of electricity must be generated by the rapid evaporation of the water which holds these substances in solution. It might be argued from analogy that the calcareous granules in the organized skeletons of Vertebrata partake of the same crystalline arrangement, when first deposited, but that their form is afterwards altered by the constant absorption and renewal which takes place in true osseous textures.

The last general analogy we shall notice is the tendency to a spiral arrangement manifested in both kingdoms. All the higher plants may be regarded as constructed upon this plan, which is exhibited both in the attachment of the foliaceous appendages and in the formation of the stem itself: in both cases it might escape the notice of a superficial observer, but the universality of the fact is pointed out by De Candolle,† and has been more recently demonstrated by Braun, whose researches are detailed in the works at the head of the present article. Many stems have a tendency to twist on their own axes; and, when a lateral direction is given at the same time, the helical mode of growth is produced, so common in climbing plants. The stalk generally coils from right to left, but some species, like the hop, turn in a contrary direction; and in both cases the plant languishes and dies, if its natural mode of growth is interfered with. The complication of the forms of animals prevents our recognizing a similar arrangement in their higher groups; but it is the prevailing type of formation through a large portion of the Mollusca, and we believe that it has also been shown to govern the addition of new plates in the external skeleton of the Echinoderma. In the Mollusca, the usual direction of the spire is from right to left, but many genera invariably turn in the contrary way, and their shells are then said to be reversed. In some species the reversion is occasional, and it is not unfrequently met with in bivalve as well as spiral shells. There can be little doubt that, whatever cause produces the reversion of shells also effects the transposition of organs in the higher animals; and it would not seem improbable that the abnormal formation is in some way connected with the position of the embryo during its development, since we constantly find it existing on one side of double-bodied fœtuses.

Although, however, we regard the spiral mode of development as that which predominates in the vegetable kingdom, we can by no means assent to the speculations of M. Raspail, whose spiro-vesicular theory appears to us one of the most ingenious absurdities which we have ever encountered. The importance, however, which he attaches to this favorite hypothesis requires that we should not thus summarily dismiss it, and we shall therefore allow our readers to judge of it for themselves, stating it as nearly in his own words as the nature of an abridgment will allow.

* Report of the Meeting of the British Association, August, 1836.

† *Organographie Végétale*, tom. i. p. 155.

"The solution of the problem I am about to enunciate," he says, "will account for the whole system of vegetation; and with the three elements of each vesicle we shall have the means of organizing, according to positive formulæ, every plant already known or hereafter to be discovered." (§715.) The following is the problem thus pompously introduced:—"The generating cellule being given, with its three essential elements, to find in one of these elements the immediate cause of the disposition and symmetry of organs in every species of plant," (§716;) and it is thus solved. The globules, of which he regards the parietes of the vesicle as formed, and which are the rudiments of future organs, will not become developed until they receive a certain stimulating or fertilizing influence, which is conveyed to them by the spiral fibres winding round the interior of the cell. This influence cannot be conveyed to them by a single fibre, however, (and the existence even of this in every cell, be it observed, is a pure assumption;) two spires, a male and female, revolving in opposite directions, are required for this purpose, and it is only at their points of intersection that the rudimental globules become developed; an effect which cannot be produced by any number of spires revolving in the same direction. If the original cell, therefore, becomes a trunk, and the secondary vesicles are leaves or buds, the latter will be arranged on the first in a manner corresponding with the crossing of the spires; and, where these are equal in number, and revolve with the same rapidity in each direction, the mode of disposition will be *alternate*. To produce the *opposite, spiral, or verticillate* arrangement, we are required to suppose a variation in the number of the spires or in their relative velocity of revolution, by which their points of intersection, and consequently the organs formed by the development of the globules, may be brought to assume almost any position with regard to each other, as is demonstrated by M. Raspail in a succession of theorems.

In conceding to this theory the merit of great ingenuity, we conceive that we give it all the credit which it deserves; as an explanation of the principles of vegetable structure, we reject it for many reasons, of which the two following are the principal:—1. The theory is not supported by any observations, except a single one upon a *Conferva*, in which we are inclined to think that the fertility of the author's imagination supplied the place of perfection in his instrument; and it is inconsistent with the statements of those who have observed with the clearest and most powerful microscopes, as well as with unbiassed minds; all of whom agree in stating that the spiral fibre, where it exists, is usually single, and that, when two or more spires occur, they run in the same direction. 2. It assumes that the arrangement of organs is constant in each species, and it is therefore inconsistent with the well-known fact that in many plants the position of the leaves is constantly varying; those which are usually opposite or alternate becoming verticillate, and *vice versâ*. We say nothing of the hypothesis of male and female spires, and of the impregnation of the subjacent globules by their contact, the probability of which we may leave to the judgment of our readers; and we shall detain them no longer upon a question of so little practical utility, proceeding rather to the more strictly physiological department of our subject.

The existence and preservation of all organized beings is so intimately connected with the changes which are constantly taking place in their

composition, that our simplest ideas of vitality are derived from the observation of these processes, the organs by which they are performed, and the concurrent circumstances on which they are dependent. In all living beings, whether animal or vegetable, the appropriation of matter from without, its conversion into a nutritious fluid whose elements supply materials for the growth and reconstruction of the fabric, and the excretion of the particles unfit for these purposes, constitute the sum of the vital acts by which the existence of the individual is maintained, and if we make due allowance for the differences occasioned by the possession of the faculties of sensation and voluntary motion, we shall find, on a close examination, that there is really a much greater resemblance in the mode by which the processes of nutrition are performed in both kingdoms, than a superficial view would lead us to suppose.

Thus with regard to the ingestion of aliment, it has been frequently maintained as a typical difference between vegetables and animals, that the former absorb their nutriment from the whole or from special parts of their external surface, whilst the latter receive it into internal cavities where it undergoes a certain degree of preparation, before absorption can be properly said to commence. "The spontaneous motion essential to animals," says Cuvier, "requires peculiar modifications even in such of their organs as are essentially vegetative. Unprovided with roots to penetrate the soil, and constantly to absorb nutrition, it was necessary that they should be able to place within themselves a supply of aliment, and to carry its reservoir along with them. Hence is derived the first character of animals; their intestinal cavity, from which passing through the pores and vessels (which may be considered a kind of internal roots) the nutritive fluid penetrates every part of their system, and sustains the whole." This view, though generally correct, requires to be greatly modified when we come to apply it to particular cases; for not only are there animals in which the most minute investigation has failed to detect an approach to an internal cavity, but late researches into the character of particular organs with which some plants are furnished, render it very doubtful whether any definition of a stomach could be framed, in which they would not be included.

In the lowest tribes of cellular plants, which present no approach to a vascular structure, absorption seems to take place by the whole surface in nearly an equal degree; and there is no transmission of fluid from one part to another, each portion of the tissue imbibing from the surrounding medium the nutriment which it requires. It was in this manner that the greater part of the infusorial animalcules were formerly supposed to derive their support; but the researches of Müller, Ehrenberg, and others, have established that their complicated digestive apparatus entitles them to a place in the animal scale far above that which has been usually assigned to them. The gemmules of the porifera are however certainly nourished by external absorption merely; Dr. Grant states that "as long as they retain this form, and for some time after their development in a fixed condition, they present no perceptible canals or cavities of any kind in their body; nor do the polypiferous animals while they continue in the same free state of ciliated moving gemmules. As the development of the porifera proceeds, minute openings are observed to form on the surface, which extend gradually through the body, producing internal canals

which terminate superficially in vents or fecal orifices.”* These internal canals are bounded only by a more condensed portion of the general cellular substance of the body, and may be considered as a simple extension of the external surface. They are incessantly traversed by currents of water which are drawn in by the minute pores, and expelled by the fecal orifices, and there are no distant cæca or stomachs for receiving and retaining the aliment thus conveyed into the body; every part of its texture appearing to be nourished by direct imbibition from the fluid in its neighbourhood. In this very simple organization we cannot help tracing a strong analogy with the mode of nutrition in cellular plants. We have noticed that in the lowest orders of these, the absorption is nearly uniform through the whole surface; but as soon as any specialization of this function takes place, as we may partially notice in the lichens, and still more in the fungi, (whose reproductive system is completely separated from the nutrient,) it is manifested in the development of filamentous processes of which the whole length seems concerned in the active imbibition of fluid. Hence the chief difference between the porifera and cellular plants in their mode of receiving nutriment, is that in the latter, the extension of the absorbing surface takes place externally; whilst the alimentary canals of the former may be compared to the ramified roots of a plant turned inwards; a difference analogous to that of the bronchial and pulmonary organs of aquatic and air-breathing animals.

Passing on to the vascular plants, we find each elementary fibre of their roots to consist of a bundle of fibro-vascular tissue covered by a lax cellular integument, and terminating in a blunt succulent point, which has the power of absorbing fluid with great rapidity. The *spongiole*, as this point has been termed, is sometimes spoken of as a distinct organ; but it is nothing more than the growing point of the root, which, with a few exceptions, lengthens only by additions to its extremity. The soft lax tissue of the newly formed part causes it to possess in an eminent degree the power of absorption; but as the fibre continues to grow, and additional tissue is formed at the extremity, that which was formerly the spongiole becomes consolidated into the general structure of the root, and loses almost entirely its peculiar properties. The vessels contained in the elementary filaments are portions of the general vascular system of the root which is in direct connexion with that of the stem, serving to convey the absorbed fluid to the organs where it is to undergo its elaboration. The most distinct analogy to this structure in the animal kingdom is perhaps to be found in the higher forms of the echinoderma, such as the holothuria, where the alimentary matter is absorbed from the parietes of the internal cavity by vessels corresponding to the mesenteric veins, by which it is conveyed to the respiratory organs. The roots of plants have been considered by some authors as analogous to the *lacteal* system of animals; but the erroneous nature of this comparison is evident when we reflect that scarcely any rudiments of this system are found in the invertebrata, and that in those classes whose organs of circulation are most nearly allied to those of vegetables, absorption is performed by the general vascular apparatus.

It is obvious, from these particulars, that the alimentary system of the

* Grant's Outlines of Comparative Anatomy, p. 311.

lower forms of animals and vegetables differs extremely little; for in both is fluid absorbed by the general surface, or by a continuation of it specially modified for the purpose; in both are the nutrient materials brought into close contact with the parts they are to supply, without an intermediate system of vessels; and in both also the function appears to be continuously performed without the interference of volition. In the higher classes of both kingdoms the apparatus assumes a more perfect and distinct form; but even in them we see in the power of superficial absorption, which is probably possessed in some degree by all, manifest traces of the primitive community of function which characterizes the general surface of the lower orders. This is manifested in vegetables by the important share which the leaves take in their nutrition; for not only is it through these organs that the greatest part of the carbon is derived which enters into the composition of the tissues of the plant, but they also appear capable of supplying, to a certain extent, any deficiency which may occur in the quantity of moisture supplied by the roots. It is an axiom in vegetable physiology laid down by De Candolle, that "when a particular function cannot, according to a given system of structure, be sufficiently carried into effect by the organ which is ordinarily destined to it, it is performed, wholly or in part, by another." Thus, it is obvious, that when the roots are absent or imperfect, or are implanted into an arid or barren soil, any plant which flourishes in such circumstances must derive its chief support either from the leaves, as in the epiphytal orchideæ and the greatest number of aërial parasites, or from the general surface, when it performs the functions of the leaves, as in the cacti: and if we consider the manner in which plants faded by the intense action of light and heat are refreshed by the natural or artificial application of moisture, we cannot doubt that absorption takes place, in these instances also, by the general surface as well as by the roots.

In many plants we may observe concavities in various parts, fitted for the reception of the moisture caught from rain, or condensed from dew; and the mode in which this is applied to the nutrition of the plant is not always evident. Frequently the fluid thus collected is conveyed to the roots, by which it penetrates to the interior of the plant; but in many cases it is preserved in receptacles which are usually formed by a modification of the leaf, and which vary in the completeness of their structure from the simple hollow formed in the leaves of the *tillænsia* or *dipsacus*, to the extraordinary pitchers (*ascidia*) of the *nepenthes* or *dischidia*. The exact office performed by the pitchers in the vegetable economy is perhaps not yet fully established. In *nepenthes* and *sarracenia* there is some doubt how much of the fluid is the produce of secretion, and what proportion is derived from without. It has been stated that one of its purposes is to attract and destroy insects, whose decomposition may be a source of nutriment to the plant, but this is doubtful. The object of the pitchers of the *dischidia rafflesiana* is, however, much less equivocal, and their structure far more complicated than in the preceding instances. This curious plant grows by a long creeping stem which is bare of leaves until nearly its summit; and, in a dry tropical atmosphere, the buds at the top would have great difficulty in obtaining moisture through the stem, and a sufficient supply is therefore furnished them by the pitchers, which store up the fluid collected from the occasional rains. "The cavity of

the bag," says Dr. Wallich,* "is narrow and always contains a dense tuft of radicles which are produced from the nearest part of the branch; or even from the stalk on which the bag is suspended, and which enter through the inlet by one or two common bundles. The bags generally contain a great quantity of small and harmless black ants, most of which find a watery grave in the turbid fluid which frequently half fills the cavity, and which seems to be entirely derived from without." The earth has been justly spoken of as the common stomach of plants, supplying them with nutriment ready to be taken up by their absorbent system, whilst animals may be said to carry their soil about with them; in this curious plant, the failure of its regular means of support has called forth the addition of an organ, which, like the stomach of animals, serves as a receptacle for the supplies it may occasionally obtain, and principally differs from it in not being filled by an act of volition on the part of its possessor.

The absorbent system of vegetables seems to correspond remarkably with that of animals in the non-existence of any visible pores, through which the passage of fluid could take place. A vegetable anatomist would have concluded from the structure of the roots of plants, that the absorbents of the intestinal canal do not commence by open mouths; and the most recent investigations seem to confirm this opinion by direct observation. It cannot be doubted, however, that the pores of the spongioles must have a sensible diameter, by which their power of absorption is limited. If the roots of a plant be placed in coloured solutions, they take up only the most finely divided particles; and if placed in dilute saccharine or mucilaginous solutions, the watery part of the fluid will find its way through the spongioles and become available for the sustenance of the plant, while the greater part of the thicker material will be left behind. In like manner, when saline solutions of a certain strength are presented to the roots, the water only, with a small proportion of the salt is taken up; and the remaining part of the fluid is found to be more strongly impregnated with the salts than before. Such experiments, however, do not afford any evidence of that discriminating power in the spongioles which is so remarkable in the lacteals of animals, and would rather confirm the analogy which we have supposed them to bear with the general circulating system of the lower animals, the remains of the absorbing powers of which are perceived in the faculty now generally conceded to the veins of the vertebrata. It has, however, been recently demonstrated by Dr. Daubeney, that plants have to a certain extent the power of selection by their roots, since of three individuals of distinct species which were made the subject of experiment, no one appeared to have taken up the smallest quantity of nitrate of strontian, with a solution of which they were freely watered. (See *Lindley's Introduction*, pp. 308-9.)

Some interesting experiments by M. Payen† on the effects of a minute quantity of tannin in solution upon the absorbent power of the roots, seem to render it likely that the apparent rejection of particular substances which Dr. Daubeney has proved to exist, may depend upon some organic change produced by them in the delicate tissue of the spongioles.

* *Plantæ Asiaticæ Rariores*. Vol. II., p. 35.

† *Annales des Sciences Naturelles*. N. S. Botan. III. pp. 5-20.

It does not appear however that the selecting power is employed to prevent matter from being introduced into the tissue of the plant which is capable of exerting a deleterious influence upon it; for many substances are taken up by the roots which speedily put a stop to vital action if an opportunity is not afforded for their excretion. Further researches on this subject are much required; and we would suggest that they might be advantageously prosecuted in connexion with the investigation, (which can hardly be considered as yet concluded,) to what extent the function of the lacteals is confined to the absorption of chyle, and how far soluble foreign matters are taken up by the veins.*

The nature of the substances from which animals and vegetables respectively derive their sustenance has been held to constitute an essential difference between them; and, although some late writers have attempted to invalidate it by asserting that vegetables require organic matter for their support, and that some animals are nourished by inorganic substances, we shall endeavour to show that the distinction is generally if not universally applicable.

"There are, perhaps, only two forms of matter," says Dr. Lindley, "which can properly be called nutritive; the one is carbon, the other water. Soil in its natural state is filled with the remains of organic bodies, which decompose, and become converted into carbonic acid. In proportion to the abundance of these is soil fertile. If we look to the effects of manures, we shall find that in most cases, except when their object is to alter the soil mechanically, or to act as stimulants, as is probably the case with sulphate of iron, their energy is in proportion to their capability of forming carbonic acid. Yeast, for instance, which is one of the most active manures we have, is so from possessing, beyond all other substances, the power of exciting fermentation, and thus of causing the formation of carbonic acid among the vegetable matter which lies buried in the soil." (Pp. 305-6.)

It has been fully proved by the experiments of Payen, that those soils which afford the most steady and equable supply of moisture and carbonic acid are the most favorable to the growth of plants; and that it is often desirable to moderate the decomposition of rich animal manures by the addition of charcoal, the too rapid disengagement of carbonic acid having a tendency to gorge the plant. If vegetables were really nourished by the direct assimilation of matter previously organized, we should expect that substances which correspond most nearly to the materials of these tissues, such as gum or sugar in solution, would be most favorable to their growth, which is not the case. We are not aware of any instances in which the decomposition of organic matter taken up by the roots has been proved to be performed within the plant; on the contrary, it has been shown that colouring particles are deposited unchanged in the tissues, that the odour of essential oils imbibed by the spongioles is diffused through the whole plant, and that vegetable poisons also traverse the stem and produce their peculiar effects on the irritable organs above, without undergoing decomposition. In all cases, therefore, in which it can be proved that organic matter is absorbed, it can also be shown that it is of such a nature as not to contribute to the nutrition of the plant. It has also been found that the ascending sap of all plants, when examined sufficiently low in the trunk to avoid the fallacy occasioned by the

dissolution of secretions previously deposited in its course, is very uniform in its composition; and this would hardly be the case if it were **dependent** upon a constantly varying supply of organic matter in different stages of decomposition, such as is afforded by different soils. The **opinion** that carbonic acid and water form the essential food of plants, is **confirmed** by the fact that many even of the more highly organized species will grow in circumstances where no other kind of nutriment is accessible to them; and no one is ignorant that the simpler forms of lichens will appear on barren rocks in the midst of the ocean, increasing by **absorption** from the atmosphere alone, and preparing by their decomposition a nidus for the reception of the germs of higher orders of vegetables. Of the various mineral substances which are taken up in solution by the roots of plants, a proper supply appears to be in many cases essential to the health of the individual; but as they undergo no assimilation or change of composition, and are simply deposited in the tissues, they can hardly be considered as contributing directly to its nutrition.

Some naturalists have contended that all animals do not necessarily derive their support from matter previously organized; but, we must confess that the instances which they have produced in favour of this opinion are far from being satisfactory. It is true that the spatangus fills its stomach with sand, but it derives its nutriment from the minute animals contained in it; the earthworm and some kinds of beetles are known to swallow earth, but it is only to obtain from it the remains of organized matter which are mixed with it; and, in fact, the inorganic matter thus taken into the stomachs of these animals, no more contributes to their nutrition than the gravel swallowed by graminivorous birds, or the chalk eaten by a hen preparing to lay. We are therefore inclined to agree with those who consider plants as intermediate in their constitution between animals and inorganic matter. "The only final cause," says Dr. Roget, "which we can assign for the series of phenomena constituting the nutritive functions of vegetables, is the formation of certain organic products calculated to supply sustenance to a higher order of beings. The animal kingdom is altogether dependent for its support, and even existence, on the vegetable world. Plants appear formed to bring together a certain number of elements derived from the mineral kingdom, in order to subject them to the operations of vital chemistry; a power too subtle for human science to detect, or for human art to imitate."

In our observations on the nutrition of plants, we have hitherto referred to those only which are possessed of a complete system of absorbing and assimilating organs; grafts and parasitic plants form a separate object of consideration. It is well known that it is essential to the success of the process of grafting, that there should be a close alliance in species between the two plants to be united; and hence it is inferred that the ascending sap varies in composition in different families. This may be partly true, since it is known that in rising through the stem it dissolves a portion of the peculiar secretions stored up from the former year; but so many concurrent circumstances influence the result of the operation, that it is difficult to say how much is to be attributed to each. Thus, it is essential to success that there should be an analogy between the modes of growth in the stock and graft; that the two individuals should be na-

turally in sap at the same period; and that the processes of vegetation should be carried on in both with the same vigour.

The manner in which different species of parasitic plants derive their nutriment, and the analogies which may be traced between them and certain parts of the animal kingdom, would afford a very interesting subject for investigation, a few points of which we shall briefly indicate. "If we examine the influence of living vegetables on one another," observes De Candolle, "we shall see them almost always in a state of contention, less violent and apparent than that of men or animals amongst themselves, but of long duration, and very important in its results." This war is maintained by parasitic plants which live, like carnivorous animals, at the expense of their fellows; though their injurious effect is not always incompatible with the life of the individual upon which they prey.

It is important to draw an accurate distinction between *true* and *false* parasites. The latter vegetate habitually on the surface of other plants, without deriving from them any nutriment except a small quantity of superficial moisture; they will live almost indiscriminately on different trees, or in any situations which will afford them the means of attachment and a small supply of humidity; and, being furnished with their own organs of absorption from the atmosphere, they send no roots into the interior of the plants on which they live. They are therefore only hurtful by covering a portion of the general surface of the tree, by partially shading it from the light if their vegetation is very luxuriant, by affording a nidus to injurious insects, and, in the case of many creeping plants, by acting as ligatures round stems and branches whose diameter is on the increase. Amongst these we may reckon the lichens and other superficial parasites among the cellulæres; as well as the ivy and many of the viteacæ, a large proportion of the tropical orchidæ, and, in general, all plants which have creeping scandent stems.

True parasites, on the other hand, are not furnished with perfect roots of their own, and are therefore obliged to draw more or less of their nourishment from the juices of other vegetables. They may be divided into two great physiological classes; the plants belonging to the first possess leaves or other green parts exposed to the influence of light, and have the power of elaborating for themselves the crude sap derived from the ascending current of the trees on which they grow; the second class comprehends those which are deficient in digesting as well as absorbing organs, and are therefore compelled to derive their food from the juices of plants which have already undergone some elaboration. Of the first class, which may be termed *chlorophyllous* parasites, a characteristic example is the mistletoe, which vegetates on almost all exogenous trees, implanting itself on the bark and sending its radical fibres to the interior of the stem, penetrating and uniting themselves firmly to the woody fibre, with which they form so intimate a connexion that coloured fluids will pass from the stock to this natural graft—for thus it may in some respects be considered. It does not appear that any connexion exists between the mistletoe and the bark beneath it, which indeed is always found to be in a state of sphacelation around its insertion. All the parasitic plants of this class (principally belonging to the order Loranthacæ,) appear to grow with nearly equal facility on a great variety of trees, a fact which we

might anticipate from the great similarity which exists between the crude sap of various kinds; but it is remarkable that the mistletoe is very rarely seen to grow on the oak, and it is perhaps from this circumstance that the occurrence was formerly regarded in a religious light.

The greater part of the second or *Aphyllous* class of parasites grow upon the roots or underground stems of other plants, no part of them appearing above the surface (in most cases at least,) except the flower stalks which are occasionally sent up. Amongst this class are the *Orobanche* or broom-rape, and the *Lathræa squamaria*, whose curious structure has been minutely described by Mr. Bowman.* As they derive their nutriment from the previously elaborated juices of other plants, by suckers fixed in the bark, they are, as we might expect, more restricted as to the number of species upon which they grow.

It appears to us that sufficient attention has not been paid to the physiology of nutrition in forming a natural classification of the vegetable kingdom. If it be true, that plants in general have the power of deriving their nutrition from inorganic matter, and thus of converting into organized products substances much lower in the natural scale, we may conceive them to hold a corresponding rank with herbivorous animals, which, by means of their complex digestive apparatus, assimilate and convert into animal proximate principles, matter previously much inferior in organization. True parasitic plants, on the other hand, like the carnivora, derive from beings as highly organized as themselves, those supplies of nutriment which their simpler conformation requires to have been already partially prepared by other means. The omnivorous animals, too, find a parallel in some of those parasitic species which derive their nutriment partly by suckers applied to other plants, and partly by means of roots sent into the surrounding earth; and the parasitic fungi, like many of the lower kinds both of carnivorous and herbivorous animals, derive their support only from dead or decaying organized substances, and may not unaptly be termed, like insects, "the scavengers of nature."

Plants, like animals, are infested by the growth of parasites within them; and it is a question not yet decided whether the development of these entophytes, which all belong to the fungi, is to be considered as the result of a diseased action in the plant itself, or of the introduction of the germs from without. It has been concluded by Unger,† as the result of his observations on the changes produced by them from their very commencement, as well as of *a priori* argument, that the uredo, œcidium, puccenia, &c. which constitute the appearances known by the names of blight, mildew, smut, &c., are to be considered as the exanthemata of plants, being essentially *maladies des stomates*; and he thinks it questionable whether such productions as the *secale cornutum* may not be owing to a similar cause. He observes that these morbid growths are most liable to occur in those portions of plants where vegetation is most active, such as the green parts in general, and the leaves in particular; and he remarks that, on the surface of *healthy* bark, we generally find either more perfect cryptogamia, or phanerogamous parasites. The cellular parasites evidently flourish best when the bark is approaching decay; and it often

* Linnæan Transactions, Vol. xvi.

† Annales des Sciences Naturelles. N. S., vol. ii.

happens, that, whilst the stem and principal branches of an old tree are covered by mosses and lichens, these are seen to diminish and disappear as we advance towards the younger and fresher portions. The presence of entophytes is said by Unger to be connected with that of the stomata; and he supposes it to be from some obstruction to their functions that the exanthemata arise. They generally appear at the season of most active vegetation, namely, the spring and early summer; whilst the period, for the most abundant and rapid development of the true fungi is the autumn and the commencement of winter. It is but fair to state, however, that Mr. Berkeley, whose authority on such matters is high, considers Unger's statements to be inconclusive.* In those cases in which fungi most unequivocally present themselves, it may be doubted whether they are not rather the consequence than the cause of the disease; for we know that the habit of the class is to appear on matter in a state of incipient or of advanced decomposition; and it would not seem improbable, that like some of the parasites which peculiarly infest the animal body when in a state of weakness, the fungi meet with a nidus fitted for their development in those parts of the vegetable tissue which are undergoing alterations by disease. It is believed by M. De Candolle, that the germs of the entophytic fungi are taken up by the roots and carried along with the current of sap, being deposited and developed in the parts where vegetation is most active; and various facts may be adduced in support of this opinion. We cannot at present dilate more upon this very interesting subject: its close connexion with various doubtful points in animal pathology need scarcely be indicated; and we would suggest it as an important question in *general physiology*, whether plants or animals of a high degree of organization are capable of producing from various parts of their tissues, beings corresponding to those of the inferior orders of their respective kingdoms.†

Though there is no motion of fluids in plants exactly analogous to the general circulation of the higher animals, an investigation into the mode in which the sap absorbed by the roots is propagated to the leaves without a manifest organ of impulsion, cannot but be interesting to the animal physiologist; since it affords him some means of distinguishing the effects of the heart's action from those of other causes which influence the motion of the blood. Philosophers in all ages have attempted to explain the ascent of the sap in plants, some attributing it to simple mechanical powers, some regarding it as an immediate effect of vital agency; and others, with more probability, considering it as partly dependent upon each class of causes. In watching the gradual specialization of the organs of nutrition in the lower orders of cellular plants, we may observe that, as soon as any tendency to vertical elevation is manifested, it becomes necessary that some means should be provided for the transmission of fluid in a determinate direction; and this is accomplished by means of elongated cells, such as we find in the stems of some fungi. The conveyance of fluid thus performed would seem to differ little, except in its possessing a determinate direction, from that which takes place in the cellular tissue of all plants, its hygroscopic properties causing each cell

* Hooker's British Flora. Vol. II. Part II. p. 360.

† See Fletcher's Rudiments of Physiology. Part II. p. 13.

to communicate to its neighbours any superabundance of fluid which it may possess; and it is observable that when the fluid has traversed the elongated cells and arrives at a part of the plant where the vesicles have a rounded form, it is equally diffused throughout. The ascent of the sap in vascular plants appears to take place partly through the young wood, being conveyed from one tubular fibre to another by the hygroscopic, or, to use Dutrochet's expression, the *endosmometric* properties of the tissue; and partly through ducts specially organized for the purpose. These are sometimes of considerable diameter and uninterrupted by transverse partitions, especially in plants having long slender stems, and whose active vegetation requires a rapid transmission of fluid from the roots; the bamboo cane and the vine afford good examples of this structure. It becomes an interesting question to determine by what power fluid is propelled through these vessels, the nature of their parietes forbidding us to suppose that any contraction on their part can be instrumental to the effect, and no evident organ of propulsion existing at their commencement. Our first object, therefore, is to enquire into the causes which modify the quantity of fluid absorbed, and the velocity of its transmission; and it cannot be questioned that the principal of these is the demand occasioned by the vital processes performed in the leaves. Of the fluid conveyed to these organs, the greater part is lost by transpiration, a function partly dependent upon simple evaporation under the influence of heat and a dry atmosphere, and partly upon exhalation from the stomata under the stimulus of light. It has been ascertained by many experiments that the quantity of fluid absorbed by the roots is in strict relation with that transpired from the leaves; and that during the night, and in winter, when the transpiration is wholly at a stand, the process of absorption is almost entirely checked. Even in winter, however, absorption may be artificially excited by any circumstance which occasions a demand for fluid; thus, if a branch of a vine growing in the open air be introduced into a hot-house, its buds being called into action by the increased temperature immediately attract fluid from beneath them, and thus the whole system is put in motion; and De Candolle has shown that in such a case the fluid consumed by the young leaves is really attracted from the cold earth, and not absorbed from the atmosphere of the hot-house. The ascent of the sap in spring may be explained upon the same principle, and we shall quote Dr. Lindley's account of it, which is partly derived from that of Du Petit Thouars.

"In the spring, as soon as vegetation commences, the extremities of the branches and the buds begin to swell: the instant this happens, a certain quantity of sap is attracted out of the circumjacent tissue for the supply of those buds; the tissue which is thus emptied of its sap is filled instantly by that beneath or about it; this is in turn replenished by the next; and thus the whole mass of fluid is set in motion from the extremities of the branches down to the roots. Du Petit Thouars is, therefore, of opinion, that the expansion of the leaves is not the effect of the motion of the sap, but on the contrary is the cause of it; and that the sap begins to move at the extremities of the branches before it stirs at the roots. That this is really the fact, is well known to foresters and all persons accustomed to the felling or examination of timber in the spring; and to gardeners who are occupied with forcing the branches of plants in winter, while their trunks are exposed to the weather." (*Introduction to Botany*, p. 331.)

There is no need therefore of having recourse to the supposition of

accumulated irritability for the explanation of these phenomena, which can be so readily accounted for on known principles; and it is obvious that the facts just quoted afford a strong confirmation of the opinion now entertained by many eminent physiologists, that the motion of the blood in the capillaries is very greatly dependent on the changes which it undergoes in them. With regard to the degree in which the motion of the sap is dependent upon the propelling power of the spongioles, we feel much disposed to agree with the views expressed by Professor Henslow:

"The water imbibed by the spongioles is also propelled forward by them with considerable force, and the effects are strikingly analogous to those exhibited by the endosmometer. These effects manifestly bespeak an action very different from the ordinary results of capillarity, and indicate the presence of a powerful force, a '*vis a tergo*,' residing in the lowest extremities of the roots by which the propulsion of the sap is regulated. Although these results so closely resemble those of endosmose, there still exists a difficulty in connecting the two phenomena; for, whilst we may admit the possibility of an interchange between the contents of the vesicles composing the spongioles, and the water in the soil which surrounds them, by the ordinary operation of endosmose, it is difficult to explain how the sap may be propelled forward so violently as it appears to be, in the open channels through the centre of the stem, which contain crude sap of nearly the same specific gravity as water itself. It would be further necessary to account for the manner in which a continued supply of fresh materials is obtained for carrying on the endosmose, which must otherwise soon cease when the fluid within has become much diluted. We shall find, however, that a constant supply of fresh material is actually provided by the direct action of the vital force, during a subsequent period in the function of nutrition; and hence it is not impossible, though it has not been proved, that both the propulsion as well as the absorption of the sap may principally if not entirely be owing to the operation of mechanical causes; dependent, however, for their lengthened continuance upon the existence of the vital energy by which those conditions are perpetually renewed, and without which the endosmose would of necessity soon cease." (*Principles*, p. 182.)

The sap in its progress upwards is known to acquire an admixture of matter previously assimilated, either by coming in contact with the descending current, or as Mr. Knight's experiments make it appear, by dissolving secretions laid up in the wood. This admixture may serve the purpose alluded to by Professor Henslow, of increasing the specific gravity of the fluid, and thus maintaining the activity of the process of endosmose; but it also appears to be the first step in the assimilation of the crude materials of the sap. "This assimilation," says Dr. Alison,* "by means of a previously existing product of vital action, is a general law of the maintenance both of animals and plants."

The chemical changes which the sap undergoes in the leaves, by exposure to the atmosphere, have been usually attributed to the function of *respiration*; and as it is now beyond doubt that they are of an opposite nature to those produced by the respiration of animals, many naturalists, and amongst them Cuvier, have proposed to establish upon this contrariety an essential distinction between the two kingdoms. We shall presently show, however, that this opinion may be reasonably doubted. With regard to the aggregate effects produced on the atmosphere by the growth of plants, we may quote from Dr. Lindley an account of Dr. Daubeny's recent experiments, which give a result entirely opposed to those of Ellis.

* Supplement, p. 5.

"Professor Daubeny has ascertained by experiments partially communicated to the British Association, but not yet published, that plants undoubtedly exercise a purifying influence on the atmosphere. In a letter I have recently received from him, he expresses himself thus: 'As the observations of Ellis left it in some doubt whether the balance was in favour of the purifying or the deteriorating influence upon the air, which is exercised by plants during different portions of the day and night, I conducted my experiments in such a manner that a plant might be inclosed in a jar for several successive days and nights, whilst the quality of the air was examined at least two or three times a day, and fresh carbonic acid admitted as required. A register being kept of the proportion of oxygen each time the air was examined, as well as of the quantity of carbonic acid introduced, it was invariably found that, so long as the plant continued healthy, the oxygen went on *increasing*, the diminution by night being more than counterbalanced by the gain during the day. This continued until signs of unhealthiness appeared in the confined plant, when, of course, the oxygen began to decrease. In a perfectly healthy and natural state it is probable that the purifying influence of a plant is much greater; for, when I introduced successively different plants into the same air, at intervals of only a few hours, the amount of oxygen was much more rapidly increased, in one instance to more than forty per cent. of the whole instead of twenty, as in the air we breathe.'" (*Introduction*, p. 317.)

It has been ascertained from other experiments that a small quantity of carbonic acid is *perpetually* evolved by the leaves both day and night; and the consideration of these phenomena led Professor Burnett to the opinion that, under the name of respiration, two distinct phenomena are confounded. He observes* that the production of carbonic acid is constant during the life of a plant, that it takes place both by day and night, in sunshine and in shade; and that this process, which he considers strictly analogous to the *respiration* of animals, is essential to its existence; for, if deprived of oxygen and confined in carbonic acid gas, vegetables quickly die. On the other hand, the green parts of vegetables, at certain times, and under certain circumstances, decompose carbonic acid, and renovate the air by the restoration of its oxygen; but this occasional renovation may be referred not to the respiratory but to the *digestive* system; and so completely is the process dependent upon the stimulus of sun-light, that plants made to grow in the dark, although they increase in size, do not augment the absolute volume or weight of their solid contents, and even lose some of their carbon by respiration. Here again the analogy holds good between the functions of respiration and digestion in plants and animals; for to both is carbonic acid deleterious when breathed; and in both is it invigorating to the digestive system when absorbed as food.

Plants when exposed to strong sun-light, will thrive in an atmosphere containing 7 or 8 per cent. of carbonic acid; but when placed in the shade they quickly die; and this fact has an interesting connexion with the luxuriance of the fossil flora of the coal formations, which abounds in gigantic specimens of plants whose development is now much inferior, even in tropical climates. It is the opinion of Adolphe Brongniart, that the atmosphere of that epoch was highly charged with carbonic acid, as well as with humidity; and that these vegetables, by the assistance of powerful sun-light, drew from it that nutriment which there was not sufficient soil to afford them, and, by thus purifying the atmosphere, prepared the earth for the residence of the higher classes of animals.

* Journal of the Royal Institution. New Series, Vol. I.

The chemical changes which are produced by the action of the atmosphere upon the crude sap, probably take place in part through the medium of the cuticle of the leaves and other green surfaces; but some are of opinion, that a more direct contact is effected by the entrance of the air through the stomates into the intercellular spaces. Besides this, it is not improbable that the office of the true spiral vessels which are situated in the interior of the stem, is in some way connected with the function of respiration; for the researches of Bischoff have shown that the air contained in them consists of a large proportion of oxygen, which probably discharges some important duty in the economy of the plant; and these vessels are brought into relation with the atmosphere by their communication with the leaves. Hence the respiration of plants appears to bear a close analogy with that of insects, an analogy which was long ago suggested by the spiral structure of the *tracheæ* in each; but it must be acknowledged that further researches are wanting before we can speak with confidence on the subject.

The animal physiologist will naturally be disposed to enquire whether any development of heat takes place during the respiration of plants; and we might look in vain for any such manifestation during the ordinary performance of the process. There are two periods, however, during the life of a plant, in which respiration goes on with remarkable activity, and in both a considerable degree of heat is generated. In germination, the first of these periods, a large quantity of the surrounding oxygen is converted into carbonic acid, by the liberation of carbon from the seed; and this appears to be the effect of the conversion of fecula or its modifications into sugar, a principle more fit for the support of the young plant. In the second period, that of flowering, the changes which take place are very similar to those produced by germination. A large quantity of oxygen is converted into carbonic acid by the action of the flower; a considerable quantity of heat is developed; and it is believed that the fecula previously contained in the disk is changed by this process into saccharine matter, adapted for the nutrition of the pollen and young ovula; the superfluous portion flowing off in the form of honey. In studying the changes produced during the flowering of plants, we find a direct relation between the carbonization of the air and disengagement of caloric, and the development of the glandular disk. This is especially remarkable in the arum, when a thermometer placed in the midst of a mass of inflorescence has been seen to rise to 121°, while the temperature of the external air was only 66°. From the experiments of Saussure, it appears that the disengagement of heat and the disappearance of oxygen are principally caused by the action of the organs of fecundation; since, when the floral envelopes are removed, the quantity of oxygen consumed by the remaining parts is much increased in proportion to their volume. In one instance, the sexual apparatus of the *arum italicum* consumed in twenty-four hours 132 times its bulk of oxygen. Unless we admit the existence of a nervous system in vegetables, we can hardly consider the development of heat during germination and flowering in any other light than as a strictly chemical effect arising from the combination of carbon and oxygen; and a strong analogical argument might hence be drawn in favour of the theory which attributes the development of *animal heat* principally to the chemical changes produced by respiration. It has been asked why

a disengagement of caloric does not take place in all flowers, if it be produced in this manner; but it should be remembered that in by far the greater number, the heat is carried off by the atmosphere the instant that it is developed; and that it is only where flowers are collected in great numbers within cases which act as non-conductors and confine the heat, as happens in arums, that the elevation of temperature becomes appreciable. M. Raspail, however, offers an explanation of the phenomenon, which differs considerably from that which we have given. He supposes that the elevation of temperature indicated by the thermometer is due, not to caloric liberated from the flower itself, but to the concentration on the bulb of the rays reflected from the interior of the spadix. He supports his view by a series of observations which he made on the comparative heights of two thermometers, of which one was placed in front of a cone of silk, and the other exposed without any envelope; and he states that when influenced by the direct rays of the sun, the former stood nearly 20° above the other. Although we are far from asserting that no allowance is to be made for the source of heat which he has pointed out, we do not regard his experiments as conclusive in favour of its being the only one; since he has neglected the fact that in Hubert's experiments in the Isle of France on the arum cordifolium, the greatest elevation of temperature was always observed at a time when the rays of the sun are least powerful, namely at sunrise; and also that in the experiments of Brongniart upon *colocasia odora*, the evolution of heat continued to increase rapidly from the complete opening of the flowers to the period of the emission of the pollen.

It appears that the removal of carbon by its combination with the oxygen of the atmosphere is essential also to the ripening of fruit; for when placed in an atmosphere deprived of oxygen, this function is suspended; and if the fruit remains attached to the tree, it dries up and dies. The extrication of carbon appears due, as in germination and flowering, to the conversion of gum and other proximate principles into sugar.

If the hypothesis of Dr. Prout* with regard to the source of carbon in venous blood be correct, a beautiful analogy exists in the effects of respiration on the economy of animals and vegetables. "Gelatine," he says, "which contains three or four per cent. less of carbon than albumen contains, enters into the structure of every part of the animal frame, and especially of the skin;" and as albumen exists largely in the blood, without any gelatine, he considers that "the conversion of albuminous matter into gelatine is one great source of the carbonic acid of venous blood." Now, gum in the vegetable kingdom may be considered to hold a rank very analogous to that of albumen in the animal system; both are immediately formed from the crude nutriment, and serve as the pabulum of the tissues in general; and both are more universally diffused than any other principle. The conversion of albumen into gelatine, therefore, would seem to be a process very similar to the change of gum, and *secula*, which is but a modification of it, into sugar.

The fluid which has thus been elaborated in the leaves, partly by the obvious processes of transpiration and respiration, partly by the hidden agencies of vital chemistry, is carried from the leaves by the under stratum

* Bridgewater Treatise, p. 524.

of veins, and appears to descend through the general cellular system of the stem. In Endogens, therefore, it is probably diffused equally through the whole trunk; whilst in Exogens it is principally conveyed downwards by the bark, and carried into the interior by the medullary rays. The descending sap probably contains, ready formed, not only the nutritious secretions destined for the increase of the tissues, but the greater part of those special secretions whose uses to the individual plant the physiologist is at a loss to explain, although their importance in the general economy of nature is so evident. Many of these are stored up in particular receptacles, without our being able to detect any special apparatus by which they are separated from the circulating fluid; but in some cases a distinct glandular structure is very apparent, and the immediate secretions effected by it are collected in an isolated form. The present state of our knowledge does not allow us to state whether these are merely separated from the proper juice, or are the products of a new combination of its elements; but it should be recollected that many vegetable principles are so nearly allied to each other in composition, though totally differing in external qualities, as to be readily convertible into one another by ordinary chemical processes; and we need not, therefore, be surprised to perceive such changes effected in plants without any very evident apparatus for the purpose. It would seem not unlikely from recent investigations into the electrical state of different parts of plants, that electricity has a more extensive influence in the transformation of organic products in the living system than has generally been supposed; and these might be advantageously contrasted with the observations of Donpé on the electrical condition of different tissues in the animal body. The recent more accurate analysis of what have usually been termed the proximate principles of vegetables, has shown that many of them are formed by the union of compound electro-positive bases with oxygen, water, &c.; and that the mode of combination in organic and inorganic bodies is not so essentially distinct as was formerly believed.* From the continuance of such discoveries in organic chemistry, aided by well directed enquiries in vegetable physiology, we might not unreasonably look for important results.

The *nutritious secretions*, sugar, gum, fecula, and lignin, may all be regarded as compounds of carbon and water, and differ very little from one another in the proportions of their elements. Sugar, from its crystalline form and simple constitution, is regarded by Dr. Prout as occupying the intermediate place between organic and inorganic compounds; whilst gum, from the universality of its diffusion through the vegetable kingdom, may be considered the essential pabulum of the tissues of plants. Fecula has been shown by Raspail and others to be nothing but a semi-organized form of gum, adapted to be stored up for the nutrition of young parts, without being liable to be dissolved by the fluid circulating around it. With regard to lignin or woody fibre, it must be considered as a still more highly organized product; and if it be true, as Dr. Lindley (following Du Petit Thouars,) supposes, that it does not originate from the descending sap, but is sent down ready formed from the leaves, we should be disposed to remove it from the class with which it is usually asso-

* Turner's Elements of Chemistry, 5th Edit. p. 782.

ciated. Some, however, regard lignin as the matter deposited within the fibre, not as the substance of the tube itself.

The circulation of the *latex* or nutritious fluid, which has been particularly described by Schulz, seems to approach pretty closely to the capillary circulation of animals. We have already mentioned, that there is a difference of opinion as to the nature of the canals in which it takes place; but there is now no doubt of the fact, that an extremely rapid movement of fluids goes on in these passages, in an uninterrupted current passing from one set of vessels to another. As this circulation was first witnessed and described in plants with milky juices, it was supposed by some to be confined to them; hence De Candolle considers it rather in the light of a peculiar local movement. It has been rendered probable, however, by more extended researches, that it is common to all descriptions of plants, and is therefore to be regarded in the light of a general circulation. The currents are very inconstant in their direction, and sometimes stop and recommence suddenly. The causes which produce the movement are quite unknown; it must be totally independent of the impulsion of the spongioles, which can only be supposed to influence the ascending current; it does not seem due to any contractile power in the vessels; and it will continue for a considerable time in detached fragments of a plant. The action is suddenly checked by cold, and again goes on when the temperature rises; by a strong electric shock also the motion is arrested. Further researches are wanting on this subject; but what is already known would seem to confirm the views of those physiologists who regard the capillary circulation in animals as partly independent of the heart.

The *excretions* of plants by their roots, the nature of which has been so successfully investigated by M. Macaire, seem to correspond in character with their peculiar juices, and may be regarded as merely separated from them, in the same manner as (there is now good reason to believe,) the excretions of animals are separated from their blood.* It is probably to the effects of the excretions of one family upon the roots of another, rather than to any peculiarity in the nature of the aliment required by each, that we are to attribute the influence of particular crops upon the soil in preparing or injuring it for the growth of other vegetables. Thus, plants of the family *Leguminosæ*, which excrete a large quantity of mucilage, prepare or improve the soil for the *graminæ*; whilst the *papaveracæ*, which excrete a matter analogous to opium, are notoriously injurious to either. If an extensive series of facts of this kind should be established by experiment, it is obvious that the principles of agriculture might be much improved by their practical application.

It is perhaps in the study of the function of reproduction that vegetable and animal physiology are most capable of being advantageously conjoined. In the simplest forms of plants, composed of aggregated vesicles, each cell may be regarded as a distinct individual, being capable of maintaining an independent existence. Here then the processes of nutrition and generation are united, and nutrition may well be called "a perpetual generation." As we rise in the scale, the aggregated vesicles lose a portion of their individuality, the general structure

‡ Alison's Supplement to Physiology, p. 36.

assumes a more determinate form, and a special generative apparatus begins to be evolved; but, even in the higher forms of the Protozoa there is often no distinct line of demarcation between the nutritive and reproductive portions of the general surface. In the higher green plants, however, a more complete separation takes place; but, till the anatomy of their generative system has been attentively studied, it has made the basis of classification, little is known of its physiology. In many cases, besides the *spores*, which are homogeneous masses of cellular substance acting like seeds in reproducing the species, the plants propagate themselves by *gemmae*, which may be considered analogous to the leaf-buds of the Phanerogamia. The minuteness of the spores and the universality of their diffusion will probably account for most of the phenomena attributed by some to equivocal generation; and, for a more able discussion on this subject, we may refer our readers to the *Library of Useful Knowledge*, page 118. In plants having a distinct vegetative system, we observe the two modes of reproduction in their most proper or specialized form; the one connected directly with nutrition, and the other as it were in opposition to it. Each bud of a tree may be regarded as, in some sort, a distinct individual, partly depending on and partly contributing to the general system; but, if removed from it, and placed in circumstances favorable to its growth, it is capable of developing the organs necessary for its support. Hence, the increase of the size of a plant by addition to the number of its buds may be regarded as involving the functions both of nutrition and reproduction; and this increase is directly dependent on the quantity of aliment which it assimilates. The development of the special organs of reproduction, on the other hand, only takes place when the plant is not so highly supplied with nutriment as to occasion the growth of new buds; but it is most interesting to observe that every one of these organs, however various in its appearance, is produced from the same elements as the leaf, and is capable, under particular circumstances, of reverting to that form. We cannot at present enter fully into the theoretical structure of flowers, which is ably discussed in Dr. Lindley's *Introduction to Botany*; but we must content ourselves with stating the fact that the leaf may be transformed through the successive forms of bract, sepal, petal, and stamen, until it arrives at the pistil, whose carpels are manifestly composed of leaflets, the edges folded together. Each of these organs is capable of changing into any other which is intermediate between itself and the leaf, or of once assuming the form of leaf; and accordingly we find in most flowers, some of which are permanent varieties, numerous modifications of this kind, which distinctly prove the origin of the different floral parts. The rudimentary or metamorphosed leaves which constitute the parts of a flower are subject to the same laws of arrangement as ordinary leaves, the tendency of which is to arrange themselves in a spiral round their axis of growth; but, when the latter is not developed, a verticillate form is formed, as in the ordinary structure of flowers, which normally consist of four or more such whorls. Hence every flower, with its peduncle and bractlets, may be regarded as a metamorphosed branch. Even the stamens, which are developed at the edges of the capillary leaves, which form the placenta, occasionally assume the form of leaf-buds, and then the

strong analogy with the buds formed upon the margin of some true leaves, such as those of Bryophyllum.

The mode in which impregnation is effected in vegetables is highly interesting. When the pollen is conveyed to the stigma by the bursting of the anther, the agency of insects, or other means, its outer coat soon ruptures, and long slender tubes are protruded through it, which find their way downwards, through the lax cellular tissue of the stigma and style, to the ovarium. The foramen of the ovule, previously to impregnation, is of considerable size; and it appears probable that in all cases it is presented by the adjustment of the ovule, either to the placenta or to that point of the ovary by which the pollen-tubes afterwards enter, so as to receive the direct fertilizing influence of the pollen granules. M. Raspail, however, thinks proper to deny the statements of this process, which were first made by Brown, Amici, Brongniart, and Ehrenberg, and which have been since verified by many observers. We cannot understand the grounds on which M. Raspail bases his assertion, that the contact of the pollen with the stigma is *all* that is necessary for the fertilization of the ovule; since any one possessed of a good microscope and a little patience may satisfy himself of the passage of the pollen-tubes down the style in the *Asclepiadæ*, although he may not be able to trace their entrance into the ovarium. In the *Coniferæ*, however, when no stigma or style intervenes, the pollen-tubes have been seen to penetrate the bottom of the nucleus, when they evacuate their contents; and the evacuated matter soon forms itself into a bag, which eventually contains the embryo. We think it not improbable that the *early* development of the ova of all the more highly organized beings may be eventually reduced to the same type, as has already been accomplished with regard to those of mammalia and birds. Considering the earliest state of the embryo of animals and vegetables as analogous to the simplest permanent forms of their respective kingdoms, and knowing how nearly the latter approach one another, we should expect to find a corresponding approximation in the former, especially as the life of the fœtus until birth may be regarded as almost purely vegetative. Of the further development of the embryo in plants we have already spoken.

The production of *hybrids* in plants is readily effected by the application of the pollen of one species to the stigma of another nearly allied to it. Almost endless varieties may be thus produced; but mules are seldom fertile, except with one of their parents. Many plants, which have been described as distinct species, are either accidental varieties or mules between two varieties; and this fact leads us to doubt whether mules, fertile of themselves, are ever produced between two really distinct species. We are aware that the gardener would bring forward many instances to the contrary; but it must be recollected that a very large number of the plants described as distinct species have in reality a common origin, and are therefore to be regarded as belonging to the same *natural species*, though artificially divided. The tendency of some plants to produce varieties is so great, that many South American specimens, whose history was not known, have been described as distinct species, until it was found that their seeds produced each other indiscriminately. When two permanent varieties differ strongly in form or colour, so as to be regarded as distinct species, which is frequently the

case, an immense variety of fertile mules may be produced between them; and it is by such an intermixture of breeds that the races of edible fruits and vegetables have been brought to so high a degree of perfection. If any instance of fertility in true hybrids ever occurs, (of which some instances are on record in animals,) the power appears to become extinct in a few generations.

We intended to dwell at some length on the elementary vital properties of the tissues of plants, with the view of investigating how far they may be regarded as analogous to those of animals: our limits, however, allow us to say but little on this subject. All parts of living plants may be regarded as possessing the property of *excitability*, or *irritability*, in its most extended sense, exhibiting the various manifestations of life under the influence of external stimuli, and being totally dependent on them for their continuance. In this point of view, they afford to the physiologist the means of tracing the effects of vital stimuli upon organization, more immediately than he can observe them in animals, since there is no good reason to believe that the results are complicated in plants by the influence of a nervous system. The spontaneous motions which occur in plants are generally to be attributed simply to the elastic and hygroscopic properties of their tissues; but the sudden contractions which take place in many instances from the direct application of a mechanical stimulus, would seem to indicate the existence of a property not altogether unlike the irritability of muscular fibre, but insusceptible of any other kind of stimulus.

It is a very interesting subject of enquiry how far the instinctive actions of animals may be regarded as analogous to those of plants. In the systems of the latter, we may observe the direct "response of their organization to external agencies;" and the same would be true of the organic functions of animals, if we adopt the opinion of many physiologists, that they are not immediately dependent upon innervation. The powers which Bichat termed (perhaps somewhat incorrectly) organic sensibility, and insensible organic contractility, may thus be considered as the proximate causes of the manifestation of *vital instincts* both in plants and animals, whatever we may think of their relation in the latter with the ganglionic system of nerves; and we might then regard the obvious motions of plants as occasioned by the exaltation of these powers in certain cases; whilst the *external instincts* of animals, requiring for their manifestation the exercise of the organs of voluntary motion, are obviously dependent upon the nervous system, by which alone these organs can be made to act. But, as Mr. Kirby justly remarks, "can we not conceive that the organization of the nervous system may be so varied and formed by the Creator as to respond in the way that he wills to the impulses of the physical powers of nature, so as to excite animals to certain operations for which they were evidently constructed?" The subject upon which we have thus cursorily dwelt is one which offers a wide field for investigation; and we hope that we have succeeded in showing that such an enquiry may be conducted most philosophically, and with the greatest prospect of success, when it is made to embrace all the classes of objects in which vital phenomena are manifested.

ART. II.

Lectures on the Morbid Anatomy of the Serous and Mucous Membranes. By THOMAS HODGKIN, M.D., Demonstrator of Morbid Anatomy, and Curator of the Museum, at Guy's Hospital, &c. Vol. I. *On the Serous Membranes, Parasitic Animals, Malignant Adventitious Structures, and the Indications afforded by Colour.*—London, 1836. 8vo. pp. 402.

THE present volume contains twelve lectures. The first is introductory; the next five are devoted to the subject of the Serous Membranes; the seventh, to the consideration of Parasitic Animals; the eighth, to adventitious Serous Membranes; the ninth, tenth, and twelfth, to Malignant Diseases; and the eleventh is on the Colours of the Animal Tissues.

The importance of the subjects embraced by these lectures, and the reputation which Dr. Hodgkin has justly acquired as a zealous cultivator of pathological anatomy, are sufficient to claim the earnest attention of every reader to the work before us. Any lengthened prefatory observations, therefore, would here be out of place; and we proceed at once to the consideration of the Introductory Lecture, which, as explanatory of the views of the author, is entitled to some preliminary notice. This lecture comprises, in addition to some judicious remarks upon the importance of morbid anatomy, and the expediency of examining all cases of fatal disease which may fall under our notice, an interesting though brief outline of the progress of this part of medical knowledge, from the earliest periods of medical history down to the present time.

There are three modes in which the phenomena of pathological anatomy may be considered and arranged; and each has its peculiar advantages. The first of these is founded upon the anatomy of regions, and is that followed by Dr. Baillie; the second is based upon the principles of general anatomy, which, as will at once appear from the title of the work, is the method adopted in the series of lectures before us; the third, and certainly, however the convenience of teaching may for a time induce a preference of one of the preceding methods, the most philosophical and scientific, is that pursued by Dr. Carswell, in his splendid and truly valuable "*Illustrations of the Elementary Forms of Disease.*" That there are certain disadvantages, even for the purposes of tuition, attending the plan followed in the present treatise, Dr. Hodgkin is himself apparently aware, as he has so far followed Dr. Carswell as to consider some morbid degenerations separately from the tissues in which they occur; for instance, Melanosis, Carcinoma, and other forms of malignant disease.

The arrangement here followed is the same as that adopted in the classification of the morbid preparations belonging to the museum of Guy's Hospital.

"Deviations from the normal state; consisting—

- "1. In deficiency,
 - a. The result of suspended development.
 - b. Loss sustained.
- "2. In excess.

"3. In form.

"4. In appearances which may be regarded as the result of ordinary inflammation.

"5. In appearances which are the result of scrofula.

"6. In appearances which are the result of diseases called malignant, or resembling them in structure.

"7. In hydatids in the particular organ.

"8. In the effects of accidental injury." (P. 16.)

Of the lectures more especially devoted to the Serous Membranes, the second relates to the serous membranes generally; the third, to the arachnoid membrane; the fourth, to the pericardium; the fifth, to the pleura; and the sixth, to the peritoneum, tunica vaginalis, and bursæ.

Previously to describing the morbid alterations of tissue, or other degenerations to which the serous membranes are liable, the author gives a short summary of the characters presented by them in the state of health. The observations upon this point, though perhaps not strictly relevant to the professed subject of the lectures, might have been extended with advantage, especially with reference to the minute structure of the membranes, developed by the microscope. Dr. Hodgkin advocates, as our readers know, the opinion that the ultimate structure of the primitive tissues is fibrous, and not globular, or spheroidal; and he repeats the observation here with respect to the serous membranes in particular.

"The ultimate structure of these membranes, like that of the cellular tissue, has been regarded by most minute observers, both British and foreign, as consisting of extremely minute fibrillæ, so combined as to form lamellæ. By many modern physiologists, French and German, as well as English, these fibrillæ are believed to be composed, in their ultimate analysis, of globules, arranged like strings of beads. This opinion, I am fully convinced, has its sole foundation in an optical illusion. My friend, Joseph Lister, who has carried the powers of the microscope far beyond anything to which they had previously attained, has very minutely examined this, as well as most of the other animal tissues. He and myself have spent hours in the most careful examination of the subject, and not the smallest doubt is left on our minds as to the absolute fallacy of the globular theory." (P. 26.)

Notwithstanding this statement, we must remark that, among those who differ from Dr. Hodgkin and Mr. Lister, are those admirable observers, Hewson, Bauer, Prevost and Dumas, Dutrochet, Meckel, and others. Meckel, as Dr. Hodgkin states, considers the serous membranes as consisting of a coherent, homogeneous, viscid, amorphous substance, condensed in broad layers; but this description is said to apply only to recent and imperfectly formed membranes. Assuming, however, the microscopical observations of Mr. Lister to be the most accurate hitherto made, and in themselves free from those optical illusions which are presumed to have misled others, we do not see how the globular theory is set aside by "*a priori* reasoning," any more than the fibrous, or any other which might be brought forward. "The extremely delicate textures," says Dr. Hodgkin, and the remark is correct, "of which animals of the most minute microscopic size are formed, precludes the possibility of the ultimate structure being visible to our eyes, however aided by microscopes. There are animalcules of such minute size, that their entire bulk is not equal in volume to that ascribed by the advocates of the globular theory to one of their ingredient or primitive molecules."

(P. 26.) But, as we have already remarked, however this mode of reasoning may militate against the reception of the globular theory, it equally militates against all others relating to the ultimate elementary composition of this and other tissues. The real question is, not what is the ultimate structure, but what is that structure which our means of investigation have made known to us as the most minute and elementary hitherto developed? Mr. Lister and Dr. Hodgkin assert that it is the fibrous. Other observers, of acknowledged talent, and of competent skill in the use of the microscope, assert that they have gone further; that they have succeeded in developing a globular or spheroidal structure in the minute fibrillæ, into which the lamellæ or plates of the serous membrane are primarily resolved. Unless we are to admit that these last have been misled by optical illusion, which we confess ourselves unwilling to do,—as, in that case, we must throw the same doubt over all the investigations which have been made, and may yet be made, into elementary structure,—we must, in candour, still hold the question undecided, until repeated observations by both parties shall have further cleared up the obscurity in which the subject is involved.

The question of the vascularity of serous membranes is also one upon which there is considerable difference of opinion, and, intimately connected as it is with the subject of inflammation, we should have been glad to have seen it treated somewhat more at length. Rudolphi and others maintain that vessels do not exist within the texture of the proper serous tissue, although they ramify extensively in, and perhaps over, the reticular texture immediately beneath. Dr. Hodgkin is disposed to think, from the elementary structure of the tissue, that the fibres and laminæ of which it is composed may admit of the passage and ramification of vessels through and within its substance. As far as we have been able to observe, we are inclined to agree with M. Gendrin* that, with some few exceptions, as in the pleura towards the summit of the lungs, and in some portions of the peritoneum, the serous membranes are not vascular; the minute vessels ramifying in the cellular or subserous tissue, to which these membranes are more or less intimately united, pouring out their fluids either upon the free surface, through the medium of minute exhalent branches passing directly through the tissue, or otherwise into the subserous reticular tissue, whence the effused fluid rapidly transudes through the minute pores of the proper serous tissue by a process analogous to imbibition.

It has been doubted whether the serous tissues are supplied with nerves; and a proof of their deficiency has been sought for in the fact, that, in the state of health, they are endued with little or no sensibility. On the other hand, their extreme sensibility in a state of disease has been considered to afford strong grounds to believe that they are not destitute of nervous fibrils, though hitherto none have been detected in their texture. Without entering into this question, we may observe that the existence of pain, arising from injury of parts of such extreme tenuity, and so intimately connected with other organs, can scarcely be considered as an argument in favour of their possessing nerves, as it is almost impossible to produce irritation, mechanical, chemical, or vital, of such a

* *Histoire Anatomique des Inflammations*, t. i. p. 47.

texture, without involving other organs and tissues, closely, and indeed inseparably, connected with it. The tunica vaginalis is extremely sensible to pain when injected in the operation for hydrocele; but this pain does not usually occur until a few seconds after the injection of the stimulating fluid, and may equally arise from the sensibility developed in the parts beneath by the absorption or the imbibition of a portion of the fluid.

Passing over those alterations of tissue which consist either in its deficiency, in its excess, or in irregularity of form, which are for the most part connected with and dependent upon corresponding deviations from the normal state in the subjacent viscera, we proceed to examine those morbid changes in the serous membranes which may be regarded as the results of inflammation, and the diseased processes connected therewith. Alluding to the conflicting opinions of authors respecting the nature of inflammation, Dr. Hodgkin himself declines attempting a definition of what he understands by this term, leaving his opinions to be gathered from the facts subsequently brought forward. We are not inclined to question the propriety of this proceeding, as, however convenient it may be to have a brief summary of the essential characters of any object which may be brought before us, it cannot be denied that the real use of such compendious definitions has been too often mistaken; and what was merely intended to facilitate the acquisition of important knowledge has not unfrequently been substituted for that knowledge itself. The celebrated definition, "*rubor et tumor cum calore et dolore*," has been at least the cause of as much superficial and erroneous thinking, as it has been of advantage to the progress of the student. Inflammation is a particular mode of action in the tissues and organs of the animal body, and a knowledge of it can only be acquired from its effects. The phenomena of inflammation presented to us in the serous membranes differ from those which the same principle, or action, or deviation from the physiological state, presents in any other tissues or organs; any general definition or abstract idea of the term, unless we had arrived further in the elimination of the laws of health as well as disease than our present knowledge seems capable of carrying us, would only therefore lead into error.

A suppression of the usual secretion would appear to be one of the first appreciable effects of inflammation of serous membranes; and, from the analogy of the mucous membranes, we are inclined to think this of more frequent occurrence than is commonly supposed: it is sufficiently obvious, however, that this state can seldom come under the notice of the pathologist, although it has been observed. The increase of secretion, or rather, we would say, the pouring out from the exhalents communicating with the distended capillaries of the subserous tissue, of the more fluid parts of the blood, is, on the other hand, so frequent as to be considered one of the usual terminations of inflammation in those tissues. Some authors have thought that the effused fluids may be simply augmented in quantity, preserving all the qualities of the ordinary serous secretion. Where this is the case, if it really does occur, we should be disposed to doubt its being an effect of inflammation. The fluid which moistens the unattached surfaces of the serous membranes, and which is presumed to be a secretion from them, is by no means identical with the serum of the

blood; for the most superficial examination will show that, in each several variety which the serous tissue presents, the secretion differs in its sensible qualities. The secretion furnished by the arachnoid is, as Dr. Hodgkin remarks, the most aqueous of the serous secretions; the secretions from the peritoneum, pleura, and pericardium, appear, independently of any morbid alteration, to be more charged with animal matter; those of the synovial bursæ and of the capsules are still more viscid; while in serous cysts,—an adventitious production, it is true, but so strictly analogous to serous membranes as to admit of their being adduced here to strengthen the preceding observations,—we find every variety of secretion, from a perfectly clear, limpid, aqueous fluid, up to mucus not less clear and perfect than any produced by the Schneiderian membrane or the follicles of Naboth. (P. 29.) Dr. Hodgkin makes use of the preceding facts to show the gradual transition from serous to mucous tissues. Those cases in which the fluid contained in serous cavities most resembles the natural secretion of the respective cavities are passive or atonic dropsies, which may be supposed to depend upon a diminished power of the absorbent system, or obstruction to the course of the blood. These, however, are of much rarer occurrence than is commonly supposed, even at this time, when the inflammatory origin of many forms of dropsical effusion has been so fully recognized. That the fluid poured out by the exhalents, in certain cases of inflamed serous membrane, is derived at once from the blood, independently of any secreting process, is rendered more evident by an examination of the varieties which these effusions present. Sometimes they are perfectly limpid and of a pale straw colour, and strictly analogous to the serum of the blood. Sometimes they are more or less tinged red, as if from the admixture of blood; the vessels having, in such instances, permitted the passage of some of the red particles of that fluid; while, in other cases, blood, more or less pure, is found to have escaped from its vessels, without the rupture of any large branch to account for its presence in the serous cavity.

We are far from wishing to attempt a refinement in our pathological distinctions which is not borne out by well-ascertained facts, but we cannot but think that, in such cases as those to which allusion has just been made, the inflammation is seated in the subserous cellular tissue, without implicating the serous membrane itself. We are led to this conclusion, partly from a consideration of the phenomena occurring in inflammations of the membranes of the brain and those covering the abdominal viscera, to which we shall have occasion again to refer, and partly from observing that inflammation unquestionably affecting the serous tissue is marked by the occurrence of other morbid changes, differing considerably in their character. Dr. Hodgkin has not attempted to draw this distinction, but the following remarks appear to justify our conclusion:

“When these appearances (turbidity of the serous effusion and false membranes,) are not observed in persons who have died of suspected pleurisy, inflammation of the muscles or cellular membrane must, in most instances, have been mistaken for it. Yet, according to the author to whom I have already alluded, (Villermé,) an individual may die, after having exhibited all the marks of pleuritic inflammation, and little if any trace of it may be found on inspection. He accounts for this anomaly by supposing that the red blood leaves the capillaries, unless they had admitted it for

some time before death. Such cases, I have no doubt, are extremely rare. From my own experience, I can cite none in which the inflammation, however recent, had not left some traces of its existence. If the inflammation have been very rapid and intense, and the patient have died on the second or third day, it is very possible that no false membrane may have been formed; but we find an effusion of serum, which, in the majority of cases, is sanguinolent or puriform. In a few instances I have noticed an effusion, nearly or quite clear and transparent, but possessing the power of coagulating on its removal from the body, after the manner of blood, but in a much feeble degree. The serous membrane affording this effusion is more manifestly vascular than in its physiological state; and this increased vascularity, instead of being uniformly diffused, more frequently produces the appearance of numerous, very minute, closely placed, and irregular red points; and is generally accompanied by small ecchymosed spots on the cellular membrane, situated behind the serous." (P. 37.)

The appearance of the serous tissue here described, and which must be carefully distinguished from the ramiform vascularity occupying the subserous cellular tissue, is precisely that which we consider to be among the earlier changes produced by inflammation seated in the serous membrane itself. In such a case we have observed the red points to assume the form of minute stars, at the same time that patches or shreds of lymph occupied portions of the free surface of the membrane. These cases are necessarily of rare occurrence, as death, in this country at least, does not commonly occur in so early a stage of inflamed serous membrane. Accordingly, Dr. Hodgkin refers to only four or five instances, as observed by Villermé, Dupuytren, and himself; and it is perhaps worthy of remark, that in each of these the pleura was the serous membrane affected. The case to which we have alluded above, which was also seated in that membrane, we look upon to afford an example of the transition from the state described by Dr. Hodgkin, to those later stages of frequent occurrence, in which there is effusion, more or less abundant, of turbid or sero-purulent fluid, with the formation of false membranes upon the serous surfaces.

The mode of formation of false membranes constitutes an enquiry of great importance, in the endeavour to trace out the phenomena of inflammation in these tissues; and, accordingly, the author has entered into this question at some length in his second lecture. After stating the views of Dupuytren and Villermé, he proceeds to give the conclusions at which he has himself arrived, from researches undertaken with the object of determining the correctness of these views. The first stage in the formation of false membranes, according to Villermé, is a pulpy state of the serous tissue, with an appearance of villi occurring at spots in which the inflammation is most intense; and these villousities, which are very short, generally of a dead white colour, delicate in structure, and easily removed, increasing and combining together, are conceived to constitute the false membrane, at the same time that some of the villi, becoming detached by the friction of the opposing surface of the serous membranes, are suspended in the effused fluid, rendering it turbulent and flocculent. Whenever, during a morbid process, interstitial effusion or deposition takes place, a certain development of the natural structure of the part would seem to arise; although, when the progress of such effusion or deposition is rapid, as in parts where considerable laxity of tissue prevails, the structure soon becomes so far effaced as to be with difficulty, if at all, recognizable. It may be doubted, therefore, whether these

villosities of M. Villermé, at least in their earlier states, are any thing more than the natural structure of the membrane, more highly developed by the morbid actions going on therein; since it has been remarked by Gendrin, that the smooth surface of serous membranes is covered with villi, as may be readily perceived with a high magnifying power, though only sensible to the unassisted eye after some days' maceration. If these suggestions be admitted, the inference may be drawn that this state of the serous surface is that which immediately precedes, and is probably influential in the pouring out or the secretion of those parts of the blood which, from their plastic nature, are disposed to assume the concrete form; while the laminæ or films thus deposited upon the free surface of the inflamed membrane from the exudation of this plastic fluid will be of various degrees of tenuity and tenacity, according to the variations in the nature of the lymph effused, which again will vary with the intensity of the inflammatory action, the constitution of the patient, the state of the blood, and other conditions of the organization, to which we need not here advert.

The preceding statements are not inconsistent with, but on the contrary naturally lead to, the opinion of Dr. Hodgkin, which, as he observes, is "in some points little more than a return to the doctrine of John Hunter, though not borrowed from him."

"I find myself perfectly in accordance with this great master of his profession, in regarding the formation of the tender diaphanous fibres, composed of the plastic part of the effusion, (the coagulable lymph of John Hunter,) as the result of a process of the same nature with the coagulation of the blood. Hence, from the first they are continuous and homogeneous, even whilst they can scarcely be said to be solid; a state which they attain by the separation of the serum, rather than by the aggregation of floating particles or villi. Notwithstanding their tenuity, and soft and tender texture, they often form bags or pouches capable of retaining the serum. This fact appears to me to militate strongly against the idea entertained by Villermé, and sanctioned by no less an authority than that of Beclard, that the form of membrane or film is produced by the aggregation of an infinite number of minute flocculi. Were this the case, we should not only find most recent membranes, to a certain degree, cribriform, and incapable of retaining fluid, but, as Villermé seems to admit, they would be more or less opaque. To obviate this objection, he appears to have considered the transparent membranes as farther advanced than he is warranted in doing." (P. 45.)

False membranes of this description are of a loose cellular texture, and in appearance transparent and filmy. They constitute many of those membranous adhesions so frequently found to exist between the folds of the peritoneum and pleura, some of which are easily broken down, while others, on the contrary, are so firm as to be altogether inseparable from the parts which are united by them.

The changes of which we have hitherto spoken would seem to result, in a great measure, from the separation of the more simple elements of the blood, by a process, in some points of view, analogous to filtration. Those of which we are now to speak are more strictly the products of vitiated secretion, originating however in inflammation, and combined with the effects resulting from that process. In cases of this description there appears to be often some peculiarity of constitution in the patient, or of the external circumstances in which he is placed, modifying the character and interfering with the ordinary progress of the inflammation. Where these conditions exist, or when the inflammation has been pro-

tracted from various causes, the effused fluids are found to be turbid opaque, of a yellowish white colour, and more or less viscid; the adhesions, if any exist, loose and readily broken down; the serous membrane covered in patches of greater or less extent, with shreds or laminæ, which are loose in texture, opaque, and of a pale yellow colour, occasionally with a reddish tinge, and readily detached from its surface. Every variety, however, may be observed between these loose, flocculent, scarcely adherent patches, and the firmest and most completely organized membranous expansion. We shall have occasion to return to this subject when considering modifications of these processes as they occur in the several forms of serous membrane; but we recommend a careful perusal of Dr. Hodgkin's excellent observations in his second lecture, in which the leading points are well brought forward.

There is one other point connected with false membranes in general which we cannot pass without some brief notice: we allude to the manner in which they become organized. Without entering into the various hypotheses proposed upon this subject, we shall content ourselves with quoting the opinion entertained by our author.

"My own opinion is, that, at the inflamed part, the minute blood-vessels not merely become distended, but that their delicate parietes, and the structure through which they ramify, become softened, and, yielding to the pressure of the blood in the distended vessels, give way at numerous minute points. This I believe to be the explanation of the fact, that, when we raise an adherent false membrane, of a few days' standing, we find that the original serous membrane beneath has lost somewhat of its polish, and presents numerous minute bloody points. The very small quantity of blood thus escaping from its vessels does not diffuse itself, but is received into the soft substance of the false membrane, which accordingly exhibits numerous blood-points on the surface which has been detached from the serous membrane. These spots, which are at first irregular, afterwards have a dendritic appearance, and extending in length, they become vessels. These vessels, being feebly supported, are distended and larger than those in the original structure from which they proceed hence the redness of newly organized false membranes. At a subsequent period these vessels contract, and may become nearly or quite invisible." (P. 50.)

This explanation, though not perfectly satisfactory, is at least equal to any other which has hitherto been proposed, and certainly far superior to the mechanical hypotheses advocated by Sir Everard Home: we must not, however, omit to state that some facts have been recorded which it would be difficult to reconcile with these views. Among others, we may refer to a case of acute arachnitis, reported by M. Gendrin, in which a false membrane, almost as dense as the dura mater, was found covering the upper part of the left hemisphere of the cerebrum with the ramifications of vessels developed in its substance. "This membrane," says M. Gendrin, "adhered slightly to the cranial arachnoid, and not to the cerebral hemisphere upon which it was applied; but, at the place where the adhesion was found, the arachnoid appeared to be healthy, and the origin of the vessels belonging to the secretion was not discovered."

The results of inflammation in the serous membranes of the brain and its appendages are ably discussed by Dr. Hodgkin, in his third lecture. He considers the arachnoid to consist of four portions: first, that which is external to the brain; second, that which lines the ventricles; third, that which belongs to the plexus choroides; and, fourth, that of the spinal cord. In this arrangement we shall follow the author in the

observations which we have to make, as the divisions adopted by Foville, although they appear to us better calculated to exhibit the relations existing between the several morbid changes and the pathological conditions giving rise to them, are scarcely so well fitted to show the relations which these morbid changes bear to each other.

We are inclined to doubt whether the frequency of occurrence of the more decided products of inflammation (sero-purulent effusion and false membrane,) between the free surfaces of the arachnoid external to the brain, is not somewhat under-rated by the author. When we find so practical a pathologist as Dr. Hodgkin stating that he had "long been fruitlessly seeking for an example, not traumatic, of this form of arachnitis," we cannot but suspect that this extreme infrequency may be attributed, in part at least, to some peculiar circumstances of locality or situation in which he is placed. At the same time, it is sufficiently evident that such appearances must be of rare occurrence, since the inflammation, in the greater number of cases, would necessarily destroy the patient, by the extent of the serous effusion and other changes induced before it attained the stage in which lymphous exudation or vitiated secretion could arise. We have, however, ourselves met with a case in which there was considerable effusion of lympho-purulent matter at the base of the brain, with adhesions between the surfaces of the arachnoid, in the person of a female dying of fever. Dr. Hodgkin refers to a case by Rostan, and to several others reported by Foville and Guersent. In a remarkable case in which the serous membranes generally were inflamed, narrated by Gendrin,* the arachnoid of the convexity of the brain and of its base was red, injected, thickened, and covered by a moderately thick purulent layer, and the pia mater was infiltrated with sanguinolent serosity; and the same author reports other examples,† in which there were inflammatory exudations, of various degrees of colour, substance, and density, more or less adherent to one or other of the free surfaces of the arachnoidal sac.

The products of inflammation in the loose cellular texture situated between the arachnoid membrane and the surface of the brain, are of much more frequent occurrence than those found in the cavity of the arachnoid. These products are, effusions of serous fluid, of various degrees of tenuity and transparency, and changes taking place in the subserous cellular structure itself. M. Foville's graphic description of the earliest stage of meningitis is quoted by the author; and most of our readers, as well as ourselves,—notwithstanding that it is rare for the disease to prove fatal in the first stage,—can, doubtless, testify to the accuracy and fidelity of the account. The exudations beneath the cerebral arachnoid have presented very different characters in different examples of fatal arachnitis which have fallen under our notice, and we think that Dr. Hodgkin has scarcely devoted sufficient attention to this part of his subject.

"Though, after the most active symptoms of arachnitis," he observes, "we often find nothing but serum infiltrated behind the arachnoid, we at times meet with a coagulable effusion, and, rather more frequently, with one that is puriform." (P. 73.)

* *Histoire Anatomique des Inflammations*, t. i. p. 75.

† *Op. cit.* Cases 11, 12, 24, 25, 26, 28, 29.

... "A large quantity of serum is sometimes found beneath the arachnoid covering the brain, in cases in which, if inflammation had been the cause, it must have been of a very chronic character. The fluid may be found collected at a particular part, and the form of the brain may be greatly modified by its presence. In one case which I saw in the Salpêtrière, several ounces of serum were collected beneath the arachnoid, covering the anterior lobes of both hemispheres." (P. 76.)

These extracts, which, with the exception of a brief allusion to some instances where the inflammatory exudation is puriform, and not unfrequently of a greenish colour, comprise nearly all that is stated by the author on this point, give but an imperfect view of what we have had occasion to observe. We find here no mention of the numerous gradations which the effused or secreted fluid presents in respect of viscosity; of its occasional gelatinous appearance, a pathological condition which we believe to be of not very uncommon occurrence; of its occasional sanguinolent character, and of the pulpy dissolved state to which the pia mater is in such instances sometimes reduced. This gelatiniform state of the serous secretion we are disposed to think is commonly the result of the more chronic forms of meningitis, and is sometimes found to proceed to great extent before the patient falls a victim to the disease. A case is related by Neumann,* in which the arachnoid membrane could not be distinguished, being apparently transformed into a gelatiniform mass, which occupied its situation on the surface of the cerebral hemispheres.

The layers of cellular tissue constituting the pia mater are not unfrequently thickened and opaque where the infiltrations of serous fluid are abundant, and similar appearances are found in the arachnoid. The morbid alterations in the structure of the arachnoid itself, however, need not detain us long: the principal are loss of polish and smoothness of its free surface, and opacity of a pearly or opalescent character, with or without apparent thickening of its substance. The arachnoid has been said to be so much altered in some rare cases of chronic meningitis as to equal nearly the dura mater in thickness, and even in tenacity; but there is much reason to doubt whether, in such instances, the superior layers of the tissue of the pia mater may not have been the principal seat of the interstitial deposition.

The arachnoid lining the ventricles is less frequently altered in its characters, although effusion of limpid fluid into these cavities is one of the most common appearances discovered in morbid conditions of the brain. The effused fluid is occasionally sanguinolent, and sometimes puriform, but is rarely found to contain lymph particles. Dr. Hodgkin alludes also to a peculiar roughness of the free surface of the membrane which is occasionally observed.

The section upon the Arachnoid of the Spinal Cord, although very interesting, presents nothing which calls for especial notice; and we proceed therefore to take a cursory view of those morbid appearances which are the results of inflammation in the serous cavities of the heart, chest, and abdomen.

The principal products of inflammation in the pericardium are the following:—Vascularity of the membrane, more or less fluid in the sac,

* Archives Gén. de Médecine, tome 6.

which may be limpid and apparently but little altered from the natural secretion, sanguinolent, opaque and puriform, or turbid; close and intimate, in some cases inseparable adhesions between the two surfaces, with great thickening and interstitial deposition; loose membranous adhesions readily giving way on the application of a slight force; bands of false membrane, of more or less firmness and extent; and a peculiar, shaggy, ragged coating, arising from the deposition of shreds of false membrane, in a loose flocculent form, on the free surface of the natural tunic.

Vascular injection of the pericardium is rarely observed to assume the form of *striæ*, and the redness of the membrane in portions recently inflamed is found chiefly to occupy patches of greater or less extent, uniformly tinged, and sometimes having numerous points of a deeper red scattered over their surface. The serous secretion is very commonly found considerably increased in quantity; and this appearance would seem to depend upon various causes. Not unfrequently it is a phenomenon purely cadaveric; sometimes it may possibly be a passive effusion, of the nature of atonic dropsy. In such cases the effused fluid has been described as abundant, limpid, and of a pale yellow colour, but little altered in its sensible characters from the ordinary secretion. Fluid of this description is occasionally found in persons labouring under some of the forms of dropsy, and also in cases of obstructed circulation, from whatever cause: we believe, however, with Laennec, Bertin, and Dr. Hodgkin, that the purely atonic form of effusion, constituting the true *hydrops pericardii*, or *hydropericardium*, is by no means a common affection; many of the cases which have been supposed to be instances of it being the result of inflammation of the serous tissue itself, or of the struggle which precedes the termination of life. The effusion is sometimes exceedingly copious, and Dr. Hodgkin refers to some cases of this description, among others to the extraordinary one mentioned by Corvisart, and since so repeatedly quoted by authors, in which the quantity of fluid amounted to eight pounds. Laennec has recognized, as a distinct form of pericarditis, the cases in which the effusion is sanguinolent, or accompanied by an admixture of blood. Dr. Hodgkin, however, says, "a slight admixture of blood not unfrequently accompanies many preternaturally increased exhalations and secretions, whether inflammatory or not: it may be seen in the perspiration from the skin, the mucus from the nose, the urine, the secretion from the testes, and in hydropic effusions, as well as in inflammations of the serous and mucous membranes." (P. 95.) This opinion must, we think, be received with some limitation; for, except in instances of what may be termed the hemorrhagic constitution,—in *purpura* and in *scorbutus*, for example,—we doubt much whether the secreted fluids are often, if at all, found sanguinolent, independent of inflammation or local abrasion. Puriform effusion is of very rare occurrence, although it appears to have been observed. Dr. Hodgkin remarks, that "when the matter of the inflammatory effusion is of the most inorganizable kind, it has a very puriform appearance." We much question, however, whether the instances referred to are of the kind to which the author alludes; and, indeed, whether an effusion possessed of the characters of purulent matter occurs independent of the previous formation of adherent and organized false membranes, in which case,

instead of considering it as an effusion of the most inorganizable kind, we should be disposed to regard it as a secretion of the reticulo-cellular tissue of which these membranes consist.

The occurrence of adhesions by means of false membranes of various extent and firmness has been well illustrated by Bichat. Dr. Hodgkin remarks, that cases in which the free surfaces of the membrane are so firmly united as to appear identified, the bond of union escaping observation, have been mistaken for the absolute deficiency of the pericardium. Instances in which such a mistake could occur must be of extreme rarity, as the adhesion is seldom found without such a degree of thickening as ought to lead to the detection of the true nature of the morbid change. The deposition of false membrane in shaggy, loose shreds upon the surface of the heart presents a very peculiar appearance; and Dr. Hodgkin thinks that it affords an explanation of "the idle and absurd stories of the heart having been found covered with hair." This shaggy form of false membrane is attributed to a considerable admixture of inorganizable matter in the product of the inflammatory process, by which adhesion is prevented from taking place. It may arise also, in part, from the extent of the effusion preventing the approximation of the walls sufficiently near to admit of early adhesion between them, at the same time that the agitation arising from the contractions of the heart, which under similar circumstances we have observed to be forcible, may exert some influence in the production of the peculiar form of the membranous, or rather flocculent or shred-like deposit. It is unnecessary to distinguish the many varieties which this loose membraniform deposit assumes on the surface of the heart and its external envelope; such as the reticulated appearance noticed by Corvisart, Laennec, and Bertin, and compared by these authors to the inner surface of the second stomach of the calf; or the undulated, transverse wrinkles described by Dr. Hope; but it may be observed, that these conditions probably indicate a still greater deficiency of organizable matter in the effused or secreted fluids, than the shaggy, shred-like form of deposition before mentioned.

The surface of the membrane is frequently found covered with a lymphous exudation of but little consistence, and, for the most part, readily detached; the membrane beneath being discoloured, of a yellowish or reddish tinge, and dull aspect. This exudation is usually of a pale yellow colour, sometimes with a greyish or greenish tinge, sometimes of a pale red. It is of soft curd-like consistence, and varies in thickness from one to two, and, in extreme cases, to three lines.

Thickening of the pericardium itself is probably of rare occurrence, and by some authorities the existence of this morbid change has been denied. Dr. Hope observes,* that "the pericardium is very rarely, if ever, thickened; that which is often regarded as thickening being nothing more than superimposed and intimately adherent false membranes." Dr. Hodgkin seems to speak with some hesitation upon this point. Morgagni, however, mentions a case, in which, beneath a whitish, ash-coloured exudation, there was thickening and slight redness of the membrane; and Broussais† relates one, in which, with a yellowish exudation on the surface of the heart, the serous membrane beneath was of a white

* *Treatise on Diseases of the Heart.*

† *Histoire des Phlegmasies chroniques.*

colour, and two lines in thickness, the subserous tissue being infiltrated with lymph.

The white spots so frequently found on the surface of the heart are thought by Dr. Hodgkin to depend, at least in by far the greater number of cases, on a deposit formed on the attached surface, contrary to the opinion of Baillie and Laennec, both of whom assert that they may be dissected off. Dr. Hope says, that they consist of condensed cellular tissue, and, with a little care, may generally be detached without injury to the pericardium beneath. An explanation is offered of the mode of their production, which is ingenious, though not to our minds satisfactory. That these spots are the product of some form of inflammation, we do not ourselves doubt; and, when we consider the obscurity of numerous cases of pericarditis, and (if we are to receive the views of M. Bouillaud,) the extreme frequency of occurrence of this disease, we need not be surprised at the circumstance of these spots being found where no symptoms during life had led to the suspicion of any affection of the pericardium. They appear to be analogous in many respects to the opaque and somewhat thickened patches which are found on the surface of other serous membranes, or in the cellular tissue beneath them, (for we believe them to occur in both situations,) and which are generally admitted to be the result of inflammation.

The results of inflammation of the serous membrane lining the thorax and reflected over the surface of the lungs, will be found detailed, partly in the second lecture, and partly in the fifth. The remarks in the second lecture, though applicable to serous membranes in general, have especial reference, as the author informs us, to the pleura. These, however, have already in part occupied our attention; it remains therefore only to notice the additional information on this part of the subject brought forward in the fifth lecture. The products of inflammation here, as in other membranes of this order, resolve themselves into changes taking place in the membrane itself, modifications of the natural secretions from its surface, the effusion or exhalation of portions of the circulating fluid, and the subsequent morbid processes arising out of the preceding.

The changes in the texture of the membrane itself are very simple, consisting of patches of redness of various shades, which, when closely examined, appear to consist of minute spots or stars, seated in the substance of the membrane, with striæ or vessels in the cellular tissue beneath. In some cases, however, there is diffused, uniform redness, of a pale colour, in patches, dotted with points of a deeper or brownish red. The morbid exhalations consist either of a fluid partaking of the character of the serum of the blood; of serum or serosity more or less charged with red particles, and hence assuming a sanguinolent appearance; or of lymphous exudations, giving rise to the deposition of layers of what has been termed albuminous deposit on the free surface of the membrane, and ultimately leading to the formation of false membranes. The changes in the secreted fluid present every variety, from a limpid, transparent, almost colourless secretion, little altered perhaps except in quantity, to sero-purulent or puriform matter, and mixed in every proportion with serous, lymphous, or sanguinolent exhalations. The secondary products of these states are false membranes on the pleural surfaces, becoming the medium of adhesions between them, more or less firm; in recent cases

being soft, opaque, loose, of considerable thickness, and of various shades of yellow, pale citron, grey, or reddish colours; in those of longer duration, consisting of cellular or reticular tissue, thin, transparent, and colourless, frequently short and close in its structure, sometimes forming long bands or bridges, or of thicker, white, opaque, dense, almost cartilaginous firmness and texture. The varieties of membranous exudation and of false membranes are described by Laennec* with great minuteness. M. Gendrin gives the following summary of their characters:—1. Layer of coagulable matter of a greyish white colour, muco-purulent or gelatiniform, penetrated with serosity or with pus, and entirely amorphous. 2. A denser matter, much infiltrated with serosity, extensible, elastic, capable of being detached without breaking. 3. A friable substance, whitish like the white of egg, having occasionally a semi-cartilaginous consistence. 4. A more porous tissue, of less density and infiltrated with serous fluid of a reddish colour, in which vessels may be distinguished. This is sometimes infiltrated with blood, is somewhat more extensive than the healthy pleura, and approaches to cellular tissue in a state of chronic inflammation.†

The subject of Empyema occupies a considerable portion of this lecture. Dr. Hodgkin very properly limits the term to a collection of puriform fluid within the sac of the pleura, although, as he observes, it has been erroneously used with a much wider range of signification. Fluids of this description are found to vary much in their qualities, being sometimes a thin serosity, rendered yellowish, turbid, and opaque, by the admixture of numerous concrete particles; sometimes, especially in cases in which the collection is found in cysts, or rather pouches, formed by the false membranes, a yellowish fluid, of creamy consistence, presenting all the characters of true pus. It may be doubted, however, whether effusions presenting this character are altogether similar to the sero-purulent fluids before mentioned, since it is not improbable that, being the production of a secreting process going on in a different structure, (that is, in the reticular cells of the false membranes,—which, as we have already seen, have much affinity with the cellular or filamentous tissue,—rather than from the surface of the serous membrane itself,) they may differ on this account, as well as from their being more perfectly concocted, as Dr. Hodgkin thinks, by remaining long in contact with the secreting surface.

The excellent account given of the character and formation of these puriform effusions is followed by a condensed statement of the pathognomonic symptoms of empyema, and a clear exhibition of the natural processes of cure, by gradual absorption of the effused fluid and contraction of the walls of the thorax, and by evacuation of the fluid by means of a spontaneous external opening. The operation of paracentesis thoracis is then considered, and the best mode of effecting it,—whether by the knife or by cauterization: to the latter method, except in cases threatening immediate suffocation, Dr. Hodgkin, we think with reason, gives the preference. An account of the manner in which the fluid is occasionally evacuated into the bronchi follows, and a very interesting case of this description is inserted, for which the author acknowledges himself

* Auscultation Mediate, vol. ii.

† *Historie Anatomique des Inflammations*, vol. i. p. 213.

indebted to M. Foville. Some of these details do not, perhaps, strictly fall within the professed object of the work before us; but we cannot regret that Dr. Hodgkin has availed himself of the opportunity of laying them before the public.

Cases in which a communication is established between the pleural sac and the bronchi and the puriform fluid brought up in large quantities by the mouth, though not frequent, are yet sufficiently so to fall under the observation of most of those who have extensive opportunities of seeing disease. Dr. Hodgkin, in addition to the one which he narrates on the authority of M. Foville, refers to one, if not more, which he saw in the clinical wards of the Edinburgh Infirmary. We have ourselves had occasion to see cases of this description. Laennec, Andral, Gendrin, and Louis report several instances; and the reader will find others in the writings of De Haen and many of the older authors, disguised under various names. It is the escape of the respired air through communications formed between the pleural sac and the bronchi, which gives rise to the most common form of pneumothorax; although air may be collected in the pleura independently of the existence of any such communication, originating, it is presumed, in the decomposition of the sero-purulent effusion. The value of the stethoscope, both in this affection and in empyema, is well pointed out by Dr. Hodgkin. Air may be produced from the decomposition of the sero-purulent effusion in the other serous cavities as well as in the pleura, and has been thought also, by Laennec and others, to be secreted or exhaled in certain states of the serous membranes. The presence of air in a serous sac from this last cause, however, we believe to be of exceedingly rare occurrence, if indeed it is ever found to exist. The evident liability to mistake the cadaveric production of gas, (which, as Dr. Hodgkin observes, in some states of the body takes place very shortly after death,) for an exhalation during life, must not be lost sight of in estimating the value of this alleged morbid phenomenon.

We extract the following passage respecting a peculiar form of the membranous deposit, which Dr. Hodgkin describes as presenting a worm-eaten appearance. The explanation of its formation, however, does not appear to us satisfactory, though we freely admit that we are unable to substitute a better.

"There is an appearance which deserves particular attention, and is sometimes met with in the pleura and other serous membranes, when inflammation has been of a chronic character, and its product of that mixed description, which, though it never assumes the form of cellular membrane, nevertheless becomes a permanent tissue, having a close, compact, and almost semi-cartilaginous character, resembling what Laennec has described as white non-fibrous tissue. The peculiar appearance to which I allude, consists in the surface of this dense adventitious structure being rendered uneven by irregular yet rounded depressions, sometimes distinct, sometimes running into each other like confluent small-pox, and presenting an appearance which suggests the idea of the part affected having been worm-eaten."

Dr. Hodgkin felt at a loss how to explain this appearance, when a case occurred, which, he thinks, throws important light on the subject and clears up the difficulty.

"In this case," he continues, "the pleura, thickened by dense semi-cartilaginous deposit, presented the worm-eaten appearance which I have mentioned; but the depressions, instead of being vacant, were filled with a soft, yet concrete inorganic material, which was not however involved in, or adherent to, the more plastic

form of the product of inflammation, as in some cases in which we have seen tuberculous or inorganizable matter shut up in the false membrane: on the contrary, this inorganizable matter was easily removed, leaving a clean and defined margin and surface to the depressions which it had occupied. Hence it would appear, that the worm-eaten appearance of the thickened surface is not produced by ulceration or other destruction of the thickening deposit, but that its deposition or formation had been prevented by the presence of a different material." (P. 124.)

The succeeding observations upon partial pleurisies and upon what have been termed dry pleurisies, that is, the formation of false membranes without any accompanying serous exhalation, we must pass over, contenting ourselves with referring to the remarks of Laennec* upon the latter of these subjects, and to the work before us for much useful information upon the former, more especially upon that part of it which relates to interlobular pleurisy with or without puriform collections. No satisfactory explanation is given, or perhaps in the present state of our knowledge can be given, of the occasional presence of detached bodies of a cartilaginous or fibro-cartilaginous nature in the pleura. The suggestion thrown out, as to the part which the processes of endosmosis and exosmosis may perform in the production of such bodies from soft coagula, appears to us scarcely justified even by analogy. The brief notice of atonic hydrothorax need not detain us, as we believe there are few now to be found in the ranks of the profession, who are not entirely in accordance with the author as to the extreme rarity of such cases.

The effects of inflammation in the subserous tissue are not often observed; Dr. Hodgkin, however, remarks that there is "sometimes a partial deposit, producing a slight thickening of a nearly opaque white colour, in some instances accompanied with a little puckering. The polished surface of the pleura at these spots is often quite natural; yet the occasional occurrence of a slight adhesion to the opposite surface of the pleura costalis must, I think, be allowed to indicate their inflammatory origin," (p. 134.) It is worthy of notice that these patches of opaque, white, thickened deposit bear considerable analogy to patches of a similar description occurring in the pia mater immediately beneath and almost inseparable from the arachnoid, and this fact may possibly tend to throw some light upon the white spots of the surface of the heart. If at all similar in their nature, they certainly favour the opinion of Corvisart advocated by Dr. Hodgkin, as to the situation of these last being upon the attached, and not upon the free surface of the serous covering of the heart.

The general changes induced by inflammation in the serous membrane lining the cavity of the abdomen and in its secretion, and the various effusions and exudations resulting, differ but little from those exhibited by other serous membranes. Still, there is considerable variety in the external forms and characters assumed by the false membranous deposits, in consequence of the extent of surface affected, the various nature of the subjacent organs, the greater laxity or closeness of the interposed cellular tissue, and the disturbance given to the diseased process by the facility of motion of the parts lying within the abdomen amongst each other. In the thorax, although there is a continual motion resulting from the alternate expansion and contraction of its capacity in the pro-

* *Traité de l'Auscultation Médiate*, vol. ii.

cess of respiration, this motion is confined within certain defined limits and is performed with a certain regularity, and its influence upon the membranous exudations is modified by the exhalation of fluid into the cavity of the pleural sac. The same remarks apply with even greater force to the serous envelope of the heart, while in the arachnoid any disturbance of the regular progress of diseased action from this cause must be almost inappreciable. In the abdomen, however, in addition to the regular peristaltic action of the several parts of the intestinal canal, the hollow viscera are continually varying in their state of distention from the passage of solid, liquid, or gaseous matters; are constantly changing their relative position in the performance of their respective functions; and are at the same time liable to be disturbed from their state of comparative repose by every change in the position of the body; the motions induced in each of these cases being also irregular and uncertain, exhibiting no analogy with the periodical and limited movements of respiration and pulsation.

The effects of inflammation upon the stricture of the peritoneum itself are: redness in patches, varying in tint and shade from a pale rose colour to a deep brown red, sometimes uniformly diffused, sometimes punctuated with minute points of a deeper shade; softening and pulpiness of its texture; thickening; and opacity; in which case the colour is whitish, and the aspect dull. The effusion also presents precisely similar characters to those found in other serous cavities. It is in the modifications exhibited by the exudations on the surface of the membrane, that we find the chief diversity in the products of inflammation to exist. Occasionally, the coagulable matter is thrown out in large quantity, which at the same time that it agglutinates the intestines together, forms an even surface towards the abdomen, and not being attached, or at least only partially so, and towards its margin, to the peritoneum lining the abdominal surface, assumes the appearance of false parietes. This peculiar appearance is certainly unusual, but we think Dr. Hodgkin is mistaken in supposing that it has not been noticed by others. Morgagni appears to allude to it, and relates an example which, as well as another mentioned by Mead, is quoted by Gendrin in his work on Inflammations.

A very interesting case is reported by the author, at page 140, which gives rise to the following observations:

"It seems to be essential to this result of peritonitis, that there should be a considerable quantity of the coagulable matter effused at once. When it is in smaller quantity, forming bridles of greater or less thickness and extent, these bridles are not merely found passing from convolution to convolution, but they also become attached to the parietes. This difference between the two cases is well worthy of attention. Were the extensive surface, which the false membrane presents in the one case, to become adherent to the parietes, their motion, so essential to the function of respiration, would be materially interfered with. In the other case, this effect is not to be apprehended from the partial adhesions in the form of bridles." (P. 142.)

We are not sure that we quite understand the author here. If it be intended to imply, that when the adhesions between the convolutions are of a more loose description and less uniform extent of membranous surface the parietes are always implicated, we must observe that we have upon several occasions seen extensive and intricate matting together of the intestines by layers and bridles of lymphic exudation, without that

appearance of false parietes which we imagine Dr. Hodgkin intended to describe, and of which the cases mentioned by Morgagni and Mead, as well as the one related by himself, afford good examples. Yet in the examples to which we refer, the serous lining of the abdominal parietes had been so slightly implicated, as to give rise to no bridles of adhesion between it and the membranous exudation, agglutinating the intestines and other viscera together, or at least to so slight and partial an appearance of them as to permit of their being altogether disregarded. Indeed, we should say, that in cases of peritonitis terminating after an interval of a few days, this matted appearance of the intestines from the exudation of lymph confined chiefly to that part of the serous membrane which covers them, is the most common appearance observed, the inflammation rarely implicating the abdominal parietes, and its effects seldom being visible therein to any extent, unless in examples of perforation of some part of the intestinal tube, with escape of its contents into the peritoneal cavity, of rupture of the bladder, or of lesions from without,—the result of surgical operations, or of injuries accidentally or designedly inflicted.

The occurrence of collections of puriform matter is by no means infrequent in the abdomen.

“These collections, which vary in size from that of a pea to that of an orange, take place in those situations in which the concrete part of the inflammatory effusion is most considerable: hence they are most frequently met with in the lateral and angular parts of the abdomen, between the convolutions, and along the thicker edges of false membranes. They may be formed in cases in which the peritonitis appears to have been productive of an effusion, at first, of a very plastic character. These purulent collections are attended with ulcerative absorption; first, of that part of the serous membrane with which they are in contact, and afterwards of the parts subjacent to it. Now, if any accident tear through the feebly-organized exterior of the matter uniting the convolutions between which such collections exist, we have an opening into the intestine, formed from without, inwards, and effecting a communication between the purulent collection and the intestinal canal.” (P. 143.)

We do not mean to question that this account is not to a certain extent correct, and that in many of these cases the process *ab initio* is as Dr. Hodgkin states; but we believe that the larger proportion of these partial puriform collections will be found to have a different origin, and to advance in an opposite direction to that which is here stated. Our own experience leads us to infer, that it is in the more confined situations of the membrane, and immediately in connexion with some local irritation, that these collections are chiefly found to occur; but the most frequent situations are not the lateral and angular parts of the abdomen indiscriminately, but the folds of the peritoneum between the rectum and bladder in the male, and between the rectum, uterus, and bladder, in the female, and in the vicinity of the cæcum in both; and, for the most part, we believe, in connexion with disease previously existing in the organs referred to. In instances of this kind there are adhesions where the edges of the folds of the peritoneum are in contact; and in the circumscribed pouch or sac thus formed, the puriform collection exists. The case of Harriet Polton related by the author is itself confirmatory of these views, and we could refer to many others in which there has been disease existing in the rectum, uterus, or caput cæcum, in connexion with sacculated puriform collections in their immediate vicinity, for further illustration, were it necessary. In Dr. Hodgkin's case, communications

formed between the sac containing the puriform collection, and various parts of the intestines in immediate contact with it, and there had been effusion of their fluid contents into the sac; we have known similar instances in which effusion of the contents of the bowels took place into the peritoneum, and were confined within a circumscribed cavity formed, in part of the folds of the peritoneum, in part of the adhesions consequent upon the resulting inflammation. It is scarcely necessary to remark, that the mode of treatment proposed by Dr. Graves of Dublin, in cases of perforation of coats of the bowels, is founded upon the tendency which there exists to the rapid effusion of coagulable lymph between different portions of the peritoneum lying in contact, and thus forming, as it were, a close and circumscribed sac limiting the extent of the subsequent diseased actions. It is due to Dr. Hodgkin to state that when he treats of partial peritonitis in a subsequent part of the work, he seems to be fully aware of the frequent occurrence of such cases connected with, and probably arising from diseased states of the subjacent viscera, although, as it seems to us, he underrates their importance as a cause of the purulent collections found in cases of general peritonitis.

The tuberculated appearance assumed by the false membranes in cases of chronic peritonitis, arising, as Dr. Hodgkin thinks, from the admixture of inorganizable matter in considerable quantity with the lymphous exudation, has not been sufficiently studied. Many of the reported cases of tuberculated peritoneum, we have no doubt, are merely instances of chronic inflammation, attended with irregularity in the deposition of the coagulable matter of which the false membranes consist; but we are by no means disposed to agree with M. Louis that all cases of chronic peritonitis are tubercular, or in other words assume the characters of what has been too indiscriminately termed tuberculated accretions of the peritoneum. We look upon by far the greater number of cases of ascites to be inflammatory in their origin, and yet, few of these, although the effusion is frequently found turbid, and various parts of the serous membrane occupied with patches and flakes of lymph, are accompanied by tubercular accretions. There is no doubt, as Dr. Hodgkin justly observes, that chronic peritonitis is very frequently conjoined with tubercles; but we are much more inclined to attribute the accompanying inflammation, in such cases, to the irritation of the tubercular matter deposited on the serous membrane, whether in the form of layers, of accretions, or infiltrated into its tissue and the subserous tissue beneath, than to suppose that the tubercular disease is a necessary consequence of the more chronic form of inflammation established in the peritoneum. In short, we cannot but come to the same conclusion in regard to the connexion of scrofulous tubercles in the peritoneum with the process of inflammation, that Dr. Hodgkin has himself arrived at with respect to malignant tubercles.

"Scrofulous tubercles of various appearances and different sizes are not the only adventitious productions met with in conjunction with peritonitis. Scirrhus and fungoid masses and tubercles connected with the peritoneum, are found accompanied with more or less abundant effusion, and with bridges and films of adhesion, which sufficiently attest the coexistence of chronic inflammation with these growths. In such cases, however, the peritonitis may be regarded as a secondary affection." (P. 149.)

The appearances observed in those forms of peritonitis in which the product of the inflammation consists, either wholly or chiefly, of inorganizable matter, are next described. In these cases there is abundant effusion of a sero-purulent or more purely serous character, with but little tendency to the deposition of lymph on the surface of the serous membranes, or to the formation of adhesions. The sero-purulent form of effusion is more common, Dr. Hodgkin thinks, in injuries or disease of the pelvic viscera, and it is a peritonitis of this kind which most commonly occurs in the puerperal state. Dr. Hodgkin states that he has "repeatedly met with cases which appeared to bear a very close analogy to puerperal peritonitis, in males labouring under disease in or about the bladder," (p. 151.) It is when the effusion is in considerable quantity, and of a more purely serous character, being transparent, and clear, and containing little organizable matter, that the disease is classified as ascites, and the effusion considered to be of the atonic kind rather than of inflammatory origin. Dr. Hodgkin, at the same time that he acknowledges the difficulty, follows Dugés in attempting to discriminate between these two forms of disease, namely, inflammatory effusion of serum into the cavity of the abdomen, a result and form of chronic peritonitis, and the purely hydropic or atonic effusion, to which some authors are desirous of limiting the term ascites. Upon this point Dr. Hodgkin makes the following observations.

"It is difficult, even on inspection after death, to draw, in all cases, the line of demarcation; for, as I have remarked with respect to effusions into the pericardium and the pleura, so also in the peritoneum, the atonic and those of an inflammatory character pass insensibly into each other. The small quantity of tender false membranes which we so frequently meet with when the serous effusion is very copious, although they must unquestionably be referred to an inflammatory origin, are, in many cases, to be regarded rather as the result of a secondary action, which the presence of the fluid has excited in the peritoneum, than as indicating that the effusion was originally of an inflammatory nature. In those cases in which the peritoneal effusion is to be attributed to chronic peritonitis, a false membrane, which is often of great tenuity, but closely adherent to the serous membrane, may be detected wholly, or to a considerable extent, investing the surface of the peritoneum. The omentum is contracted, or corrugated and folded up, under the greater curvature of the stomach; and at times reduced to so small a compass, as to be scarcely recognizable. If old adhesions have partially fixed the omentum to some part of the pelvis, which is particularly frequent in females, in whom the adhesion of the omentum to the uterus probably takes place during pregnancy; the omentum, instead of being drawn up under the stomach, is found extended, in the form of a cord, between the stomach, and the part of the pelvis to which the adhesion had been formed. Besides the contraction of the omentum, the mesentery is found more or less shortened, by which the intestines are drawn up to the spine; and, if a hernia had existed, it will sometimes be found to have been completely reduced. The intestines are more frequently reduced in length than contracted in their caliber. In extreme cases, they probably lose nearly or quite half their dimensions, and the valvulæ conniventes are consequently placed very closely to each other. This contraction of the omentum, mesentery, and intestinal canal, is, I believe, perfectly analogous to the contractions of the chest which I have noticed as occurring after pleurisies; and seems to depend on the contractions which newly-formed parts undergo after they have become organized or permanent, as we see in the large cicatrices of extensive burns." (P. 151.)

We have extracted this passage because we believe that it contains nearly all that can be said upon the subject. Such morbid appearances as the author describes, it will not for a moment be doubted, must be the

results of inflammation; but it is by no means so certain, that the very copious serous effusions coexisting with films of false membrane are of a purely atonic nature. To ascribe these films of false membrane to a secondary action, excited in the serous membrane by the presence of a fluid which is said to differ from the natural secretion of the part only in its greater abundance, is cutting the Gordian knot, but by no means unravelling the mystery, if indeed there be any mystery in the subject more than the prejudices of previously acquired notions have invested it with.

After noticing partial inflammations of various parts of the peritoneum, a honeycomb appearance similar to that of the pleura, and some other forms of inflammatory product of less importance, Dr. Hodgkin proceeds to describe the effects of inflammation in the subserous tissue. It may be observed, generally, that the effects of inflammation in the subserous tissue of the peritoneum are the same as in the corresponding tissue of the arachnoid, pericardium, and pleura, modified by the greater laxity of texture, and by the peculiarities of the several viscera between which and the serous tissue it lies interposed. We regret that we are compelled to pass almost without notice the valuable remarks of Dr. Hodgkin upon this part of the subject; we must, however, record our dissent from the opinion expressed by the author, that œdema of this tissue is probably less often the result of inflammation than of a more purely hydropical tendency, induced by disease of the lungs, heart, liver, or kidneys. The interesting details connected with the lacerability of this tissue are well worthy of attention, the separation of large portions of the inner coats of the intestines presenting a very remarkable appearance. We remember to have witnessed the dissection of a case of chronic peritonitis, in which the intestines were agglutinated together by membranous exudations, when several feet of the inner coats of the bowels were withdrawn continuously, with very slight effort, from the serous membrane and the matted tuberculiform deposit by which its different portions were inseparably united together. We cannot for a moment hesitate to ascribe this lacerability of the reticulated tissue, forming the bond of union between the serous, muscular, and mucous coats of the bowels, to the effects of inflammation in that tissue.

Ulceration of the serous membranes seems to be a very rare occurrence, and, although it may possibly take place in those cases in which, from ulcerative absorption in the subjacent organs, a breach of continuity ultimately arises in the serous membrane itself, it is by no means certain that this piercing of the membrane may not, in many instances at least, owe its origin rather to simple rupture from distention and pressure, than to any ulcerative action set up in the serous tissue itself. This would seem to be the case especially in perforations in the intestinal canal, and it must have occurred to those who have had much opportunity of inspecting diseased appearances, to have noticed the frequent instances of ulceration proceeding through the mucous and muscular tissues, and abrading and eroding these tissues for a considerable extent, at the same time that the serous tissue beneath seemed to resist the ulcerative action, and, retaining its usual appearance at the bottom of the ulcers, formed a line of demarcation between the diseased inner coats of the bowels and the general cavity of the peritoneum. This explanation will scarcely account for the perforations occasionally taking place in the pleura, where a communication is

formed between the bronchi and those partial collections of puriform matter found in interlobular pleurisy. Instances of ulceration of the arachnoid, dura mater, pericardium, and peritoneum are recorded by various authors, but Dr. Hodgkin makes no mention of cases of this description as having fallen under his notice; and, indeed, the only references he makes to the subject of ulceration connected with the serous membrane, are a few incidental remarks upon the occurrence of ulcerative absorption in the process of what has been termed empyema of necessity, and in perforation of the intestines.

On the subject of gangrene Dr. Hodgkin is more explicit, although he is of opinion, that, independently of the existence of this change in adjoining structures, or of accidental injury, it is of extremely rare occurrence.

“Gangrene is an extremely rare termination of inflammation in any of the serous membranes, especially of idiopathic inflammation. Lieutaud has mentioned one instance in the pericardium, and the highly offensive and discoloured condition of effusions into some of the serous cavities, described by Bichat, was probably attended with a state of membrane approaching to sphacelus. I cannot say that I have ever seen an unequivocal instance of gangrene of a serous membrane, except when it was either propagated from the adjoining structures, or the effect of accidental injury. We have an example of the first of these in gangrene of the lung; and of the second in strangulated hernia. It is by no means uncommon to find both the serous membranes, and the false membranes formed upon them, of a very dark colour; but this is of a different nature from gangrene, and is to be carefully distinguished from it. It depends on an altered condition of the blood in the minute vessels; and is apparently most frequent in situations in which inflammation or irritation had at one time existed, but had subsequently subsided. Or it may be decidedly cadaveric, and depend on altered blood, either in its vessels, or extravasated, or transuded.” (P. 61.)

Dr. Hodgkin subsequently refers to a case of gangrene of the pleura occurring in Guy's Hospital, in which the extent of the disease was very considerable, and, though accompanied by gangrene of the lung, did not appear to arise solely from this cause. It is, no doubt, a rare occurrence for the serous membranes to be attacked with sphacelus, and when it is considered that, independently of the cellular tissue seated beneath them, they can for the most part be but little liable even to inflammation, we shall not expect to find this change without a corresponding change in the neighbouring organs. When, however, it does occur, the serous tissue becomes of a greyish-black colour, is softened, and breaks down under the finger into a loose fetid putrilage. Dr. Carswell considers the lacerability of the subserous tissue of the intestines before noticed as owing to a loss of vitality, and consequently to a state approaching to sphacelus in this texture; and in such cases, assuming the opinion to be correct, the serous coat itself must in a measure partake in the same morbid process. Accordingly, in some instances it very readily gives way to a slight force. This appears to have occurred in the case of Elizabeth Sayce, reported by Dr. Hodgkin as an example of this lacerability of the subserous tissue. “In attempting to separate the convolutions of the intestines, the adventitious matter which united them, and also the muscular and peritoneal coats, gave way, and even torn through; leaving entire the mucous coat, which adhered so slightly to the muscular, that several feet of it could be withdrawn without the slightest difficulty.” (P. 170.)

Osseous deposits connected with the serous membranes, are commonly found in circumscribed continuous patches, or sometimes sprinkled in the form of minute spiculæ, beneath the surface of the membrane; the patches are of various extent and configuration, but usually thin, condensed, and amorphous in their structure. They are rarely found beneath the arachnoid. Dr. Baillie, however, refers to an example as existing in the collection of Soemmering; and Dr. Hodgkin mentions that a specimen is preserved in the collection of Guy's Hospital, in which a few small particles of bony matter were found in this situation. Bony matter is not unfrequently deposited beneath the pericardium in the form of thin plates. Baillie mentions an instance in which the deposition of ossific matter had been so extensive as to spread over a considerable portion of the pericardium, and Dr. Hodgkin refers to a preparation in which an osseous plate occupies a large portion of the base of the heart, where it forms a complete bony ring. Osseous deposit is also found occasionally on the attached surface of the pleura. Dr. Hodgkin mentions a remarkable instance occurring in an old man, in which there was not merely a plate of bone beneath the costal pleura nearly half encircling the chest, but also a considerable mass of the same substance. These deposits are evidently regarded by Dr. Hodgkin as the result of inflammation.

The deposition of tubercular matter is very frequently found in connexion with serous membranes, although we must be careful not to be led into the error of supposing that every case which has been described by authors as tubercular is really an instance of this form of disease. Dr. Bacon in his work on Tuberculated Accretions of the Peritoneum, as Dr. Hodgkin remarks, appears to have included under that term, instances of chronic inflammation of the peritoneum, having no connexion with the scrofulous deposit to which it is desirable the term tubercular should be especially limited. It is probable, that genuine tubercle is seldom found on the free surface of the serous membranes, except in cases where there has been a previous deposit, the result of inflammation; but we are by no means inclined to suppose from the occurrence of tubercular matter in false membranes, that the inflammation has had any share in its deposition in such situations, further than through the general effects which may have been produced, either by the inflammation or the treatment necessary to subdue it, tending to favour the development of the tubercular constitution. The tubercles in their simple and uncomplicated state are usually found in the subserous tissue, but, as Dr. Hodgkin correctly observes, collections of a scrofulous deposit, in connexion with serous membranes, are not confined to the cellular membrane on the attached surface.

"Besides these isolated collections we meet with other phenomena, both on the unattached surface and in the membrane itself. On the smooth unattached surface, collections of tuberculous or scrofulous matter, varying in size, number, and figure, are sometimes found dispersed through the substance of recent false membranes, the production of ordinary inflammation." . . . "There are other cases in which the whole of the adventitious deposit is so modified by the strumous diathesis, that, instead of the ordinary false membrane, we meet with a material known by the name of tuberculous, in the sense in which this word is used to designate the character of the material rather than its particular form." . . . "In an early stage of this deposit upon the unattached surface of a serous membrane it forms a concrete layer, possessing some degree of translucence, but wanting the lamellar form of the elastic product of

inflammation, and rather exhibiting a peculiar shortness and friability. At a later stage, instead of a semi-translucent layer, we find an opaque substance, presenting some shade of yellowish white; in fact, assuming the character of what is called crude tuberculous matter, and generally coincident with other varieties of this deposit in other parts of the body." (P. 61, 62.)

Miliary tubercles, it is subsequently said, are sometimes to be met with, though rarely, in the substance of the serous tissue itself.

The most frequent situation of tubercular deposit in the serous membranes is in the peritoneum, either in the subserous tissue, in the substance of false membranes deposited on its surface, or modifying the inflammatory product in the manner which we have just alluded to, and of which we take the preceding quotation to be a description. The genuine tubercle is seldom met with but in the subserous tissue, as Dr. Hodgkin remarks, and of its occurrence in this situation he gives the following characteristic account.

"When they occur beneath the peritoneal coat of the intestines, which is by no means unfrequently the case, they are generally of small size, but very numerous; and, at times, give to the intestines the appearance of being sprinkled with particles of boiled rice. These little tubercles are often surrounded with a vascular areola, which sometimes acquires a dark colour, from the change of the blood within the vessels. When very minute, and meriting the appellation of miliary, they appear to be situated between the layers, into which the serous membrane itself, notwithstanding its tenuity, may sometimes be split." (P. 71.)

A case is reported by M. Louis in which "the omentum covered the greater part of the small intestine, forming a mass from twelve to fifteen lines thick, uneven, alternately yellow and bluish in colour, composed of the tuberculous and grey semi-transparent matter. The meso-colon and meso-rectum presented the same alteration, but were only half as thick as the omentum."*

In the arachnoid and in the pericardium tuberculous deposits are of very rare occurrence, though Dr. Baillie mentions having met with them in both these situations. M. Lombard has seen them in false membranous adhesions, formed between the heart and the pericardium.† Dr. Hodgkin speaks very doubtfully of their presence in the substance or on the free surface of the pleura, although he has seen the false membrane lining the cavity in a case of chronic pleurisy very closely sprinkled with small opaque, miliary tubercles, which appeared to be seated on the serous membrane itself. Laennec mentions the occurrence of tubercles developed at the surface of the pleura under similar circumstances. We are much disposed to agree with the opinion expressed by Dr. Hodgkin upon this point; at the same time, we must observe, that some of the highest authorities are very decided as to the occurrence of tubercular matter both in the substance of the pulmonary serous membrane and upon its unattached surface. Corvisart and Laennec both mention the exudation of tuberculous matter from the surface of the pleura, and the latter author refers to a case reported by Boerhaave which he considers to have been of this nature, and to another observed by M. Recamier; and also reports at length a case of M. Cayol's, in which "the right lung appeared absolutely transformed into a tuberculous mass; but, on examining it mor

* *Pathological Researches on Phthisis.*

† *Treatise on Diseases of the Heart*, by Dr. Hope, p. 608.

attentively, it appeared that this matter was contained in the cavity of the pleura itself, which it entirely filled. It was a mass of a carious consistence, in which no distinct tubercle was distinguished. The thickness of this mass was about two fingers' breadth on the anterior and posterior parts of the lung, and a little less at the side.* It obviously admits of question whether the preceding cases are not rather instances of the products of inflammation, modified by the circumstances under which they occurred, than of purely tuberculous deposition. It is stated by Dr. Carswell, that "the formation and subsequent diffusion of tuberculous matter is also observed on the secreting surface of serous membranes, particularly the pleura and peritoneum;" but, from the illustrative plate referred to† and the accompanying description, the tubercles appear to have been deposited in false membranes, formed on the surface, rather than in the serous tissue itself.

We have now examined in detail the principal morbid changes observed in the serous membranes, with the exception of those which will find a more appropriate place, when we come to consider the subjects comprised in the remaining portion of the volume, viz. parasitic animals, malignant adventitious structures, and the indications afforded by colour. We must however defer to a future occasion the examination of these subjects, as the important nature of what has here engaged our attention has led us to exceed the limits within which we wished to have confined our observations.

It is hardly necessary, after the trouble we have taken to lay before our readers a full account of the contents of Dr. Hodgkin's work, to give here our formal opinion of its merits. No book but a good one could have claimed from us so much time and attention as we have bestowed on it, or have supplied or suggested materials to fill so many of our pages as we have devoted to its consideration. It is, however, scarcely doing justice to our judgment to say that the work is simply good: it is in every respect an excellent production; calculated to advance the progress of pathological science, and destined to take a permanent place among the higher order of the medical classics of this and other countries.

ART. III.

Observations on the Influence of Religion upon the Health and Physical Welfare of Mankind. By AMARIAH BRIGHAM, M.D.—Boston, 1835. 8vo. pp. 331.

Remarks on the Influence of Mental Cultivation and Mental Excitement upon Health. By AMARIAH BRIGHAM, M.D.—Boston, 1833. 8vo. pp. 130.

We look upon the object of both these publications, each of which we have read with much gratification, to be essentially the same; and it is an object of much importance. From various causes, which we must leave to the moral philosopher to develop, there appears to be a tendency, in various states and degrees of civilization, to over-exert the brain and

* *Traité de l'Auscultation Mediate*, Vol. II.

† *Fasc. I. Tubercle*, t. 5. f. 4.

nervous system, either in acts of intellect or emotion; and the condition of the most civilized portions of America and that of the most refined countries of Europe, diverse as they are, exhibit these over-exertions, each according to the actual position and circumstances of the community. In Europe, it is the intellect which is chiefly over-tasked, and in America the same fault exists in a still greater degree; whilst the emotions, in one direction at least, are also generally and excessively over-wrought. The struggles for maintaining existence, and the graspings of ambition call, in Europe, for exertions under which the energies of the brain give way. The peculiar circumstances of a new country, not yet abounding in social and refined enjoyments, a country vast in extent, and grand in its features, and a new community, where every thing is to be obtained by talent and industry, but where the most successful projects are often interrupted by death from pestilential influences, appear to plunge a large proportion of the population into what may be termed the excesses of devotional feeling, whilst the understanding of the young is lavishly over-exercised. It is the object of Dr. Brigham's work upon the Influence of Religion to point out these excesses, but not to discourage devotion; to shew the evil consequences of fanaticism, but not to disparage a pure and simple and earnest worshipping of the Deity.

Yet we believe this attempt to detach an enthusiastic people from extravagant and hurtful customs, has brought upon the author much obloquy; as if to expose the follies which degrade religion were to discountenance piety itself.

In the history of mankind there is nothing that creates more surprise than the contemplation of the cruelties which have been practised by various nations, in every part of the globe, with a view of propitiating the Almighty. These cruelties have been, and are, partly physical and partly moral, and, although their most revolting features have disappeared, the spirit which suggested them, full of violence and unenlightened, has not yet been subdued by the milder doctrines which Butler has termed the *republication* of the morality of nature. When we read the religious history of an ancient people, or the religious wars of later ages, it is difficult to believe that we are reading the history of beings capable of humanity and justice. That men who felt themselves, in simple or savage state, dependent on some unseen power which they could not resist, should have endeavoured to propitiate that power by the same acts with which they soothed the angry passions of each other, is not to be wondered at; and if they fell into the error of believing acts of horror acceptable to that power, we derive from the fact a most useful lesson. We learn that the *uninstructed* man cannot even read the true character of the Deity; that the works of nature address their eloquent language to him in vain; that the destiny of man is obscurely beheld by him; and that it is only as he advances in knowledge that he becomes *capable* of receiving and comprehending divine truths, abandons ceremonies stained with blood, and tries to imitate the goodness which he then alone discerns in action all around him.

Dr. Brigham's book presents us with a brief and distinct view of much of this extraordinary part of man's history. He commences by noticing human sacrifices, as detailed by the historians of Egypt, Scythia, Persia, Greece, Rome, Gaul, Germany, and the northern nations, and by the

explorers of the Eastern, Southern, and Western portions of the globe. He passes from these dreadful details to a notice of the mutilations of the body which have been, at various times and in various regions, practised with the same view of obtaining merit in the eyes of the Creator; such as circumcision, emasculation, flagellation, wounds voluntarily inflicted, and deformity (anchylosis of joints) voluntarily incurred. To the consideration of these succeeds that of the milder austerities of penance and fasting; and this review introduces reflections marked by much moderation and good sense, on the customs still prevalent which, altogether unessential to the purity, sincerity, and even earnestness of religion, bring inconvenience and suffering upon conscientious and devout persons. We have not often perused any thing more interesting than these details; the worst enormities of which, in remote periods, are attested by the customs actually existing in the South Sea Islands, and even in Hindostan; whilst the peculiar character of the superstitions of the most civilized states of America is forcibly represented to us by a witness who cannot be accused of indulging national prejudices at the expense of truth.

Among the various modes of self-torture which men and sects have at different periods assumed to be pleasing to a benevolent Creator, that of *flagellation* seems to have been not the least remarkable. The severe whippings inflicted upon the boys of Sparta, before the altar of Diana, had for their intention the propitiation of the goddess. It was reckoned honorable to make no complaint, and the victims of this superstition sometimes expired under the lash. But a more celebrated sect of *flagellants* appeared in Italy, about the middle of the 13th century: they ran about with whips in their hands, lashing themselves severely. In the next century they increased so much in numbers and turbulence that at length a holy war was declared against them; 8000 were massacred, and the remainder led away captive. Nor has such foolish cruelty been without modern imitators, and even in the State of New York; where, Dr. Brigham tells us, parents whipped their children as a religious duty, and to make them "submit themselves to God." A pious lady in Oneida county is quoted as having whipped all or most of her children by way of *bringing them in*, by which is meant *converting* them. One of them required whipping three times. A worthy of the Oneida presbytery, looked upon as a great authority in religious matters, and "whose praise is in all the churches," being asked to give his opinion of the propriety of "whipping children, to induce them to promise to give themselves to God," replied that he thought there was "much to be said in favour of it," and that children were rendered "kind and affectionate" by it. One cannot but wish that the process had been tried upon this unkind bigot himself. From a like spirit arose many of the gloomy austerities of monachism. Man was perpetually represented as a criminal, to whom cheerfulness was forbidden, and by whom gaiety and laughter were to be utterly forsworn. Sickness was courted, as natural to a Christian; and the doctrines of physicians, which taught men how to preserve health and life, were despised or condemned, as hostile to the very spirit of Christianity.

We pass over the author's remarks on Fasting, on the mode of celebrating the Lord's supper, and on Baptism; as involving many controversial questions, unsuitable to our pages. With rare exceptions none

of these ordinances are so practised in this country or in other countries as to affect the health, nor are they, we presume, precisely the ceremonies most likely to be practised with detriment in the United States. But the subject of Dr. Brigham's Fifth Chapter will, we hope, attract attention among his countrymen; comprehending, as it does, a consideration of the places of worship, and the night meetings and camp meetings held among the Americans.

"There is not perhaps anything more beautiful in the scenery of New England, than the churches and spires that are seen in almost every town. They are generally built of wood, painted white, and impress the traveller with favorable ideas of the order and piety of the inhabitants around. I wish I could say that these churches are as comfortable for worshippers, as they are beautiful to the observer; but in truth they are not. In general they are poorly built, and badly keep out the cold of winter and the heat of summer. The seats, usually unsupplied with cushions, are very uncomfortable places to remain in, even for two or three hours. Many of these churches are placed upon the tops of hills, where they are exposed to the violence of wind and cold, unprotected by woods or rising grounds. They have neither inside nor outside shutters to the windows, and as they are greatly lighted, the heat of a summer's sun is exceedingly oppressive.

"But this can be better endured than the cold of winter. Within a very few years, however, this evil has been greatly lessened, and many churches have had stoves placed in them, and are partially warmed; but, even now, I presume one quarter of the churches in New England, in the country towns, are destitute of any means of being warmed, and those thus unsupplied are the churches situated in the most bleak and cold places in the country. The suffering from this cause is great, and many lives, I have no doubt, have been sacrificed in consequence." (P. 139.)

The churches of our own country are not exempt from some of these inconveniences. They are ill ventilated, very cold in winter, and very oppressive in summer; and are often, in our opinion, the unsuspected causes of attacks of illness in delicate persons.

Most of the Calvinistic, methodist, and baptist churches in New England, and in the northern and middle states, have, it appears, two, three, or more meetings in the evening every week; besides which there are evening meetings for prayer, and in aid of numerous charitable and religious societies; and evening conferences once a week or oftener in most of the churches; so that Dr. Brigham says more than one-half of the evenings of the year are thus employed; and some of the zealous attendants, especially females, occupy in this way every evening in the week,—a practice which he justly condemns, as "encouraging a kind of theatre-going spirit, i. e. a love of excitement, incompatible with a love of domestic life and patient study and research at home." In some of them he has noticed a disturbance of health, and a tendency to nervous diseases, thus created. The excitement itself he considers to be useless as well as dangerous. "I have known people," he says, "all anxiety to hear a man who had visited China or some other country, give a lecture describing the places he had visited; yet these persons had never taken pains to inform themselves respecting those countries, by reading any of the full and authentic accounts of them, to be found in numerous books." We might find excuses for such a pardonable curiosity; but the case becomes serious when, as we learn from Dr. Brigham, throughout the whole community at least twenty-five, if not fifty, out of one hundred females, attend religious meetings at least 100 or 150 nights in a year.

The camp-meetings of America have been described by travellers, and sometimes probably with exaggerations, in books that are in everybody's hands. Dr. Brigham gives an account of them, and even of the fanatical language and practices by which they are characterized, with his usual moderation, setting forth the facts, often in the very words of the performers themselves, but indulging in few observations, and those free from unnecessary severity. In all these instances it is but proper to give the devotees the credit of sincerity, and the sincerity of piety deserves respect. But the consequences of such feelings, when unrestrained by a calm judgment, are generally of a nature to be deplored; and the camp-meetings unfortunately seem to furnish exhibitions equally condemned by the judgment and by a due sense of propriety. They are meetings held out of doors, and usually in the woods, for several days and nights in succession. Thousands of individuals attend them, and the professed object is a devotion of themselves during the whole time to prayer and other religious exercises. The accounts of these meetings, written by the ministers, abound in narrations of wonderful awakenings and conversions, some of which it is difficult to read without a smile.

As regards the subject of health, it is sufficiently evident that the exposure to the weather, either in the open air or in tents, during such camp-meetings, must be highly injurious to many who attend: but the ill-judged exhortations of the preachers, the frantic demeanour of the converted, the tears and groans and wild excitement of the multitude, produce in many cases the most pernicious impression on the minds of the young, the delicate, and the susceptible; sometimes ending in absolute insanity. The effect upon the preachers themselves appears to be, in almost every instance, an early breaking down of the constitution; and it has been remarked by close observers, that the general results upon the congregation are similar to those which would be produced by strong drink, a temporary and delusive appearance of strength, followed by sensorial debility and disease.

If any one feature of these fanatical proceedings were selected as more melancholy than the rest, it would be the effect of similar impressions made on children. Dr. Brigham quotes some distressing examples of the state of mind and body produced by constant and intemperate efforts to produce miracles of early piety. Such efforts seem as destructive as similar attempts to produce paragons of early mental accomplishment. In both cases the brain, or some portion of the nervous system, is overwrought, and disease, delirium, and early death are the common consequences. It is impossible to read the case of Fanny Harrison, related with self-righteous complacency by the by-standers, (p. 178,) without the most painful feelings. An interesting child of eleven years of age is stated *only then* to have become "anxious about her soul." Still, "she had not submitted her heart to God." Attendance on the protracted prayer meetings, and the reproof of all cheerfulness at home, seem to have caused the poor child to be affected with fever, of which she died. We forbear to dwell upon these topics, on which it would be really difficult to express one's feelings with calmness. But such facts prepare us fully to believe the assertion of several observers quoted by Dr. Brigham, that nervous disorders of all kinds, including complete derangement of mind, are becoming more and more prevalent in America. We trust,

however, that his work, whatever prejudices it may have offended, will excite such a degree of attention as may check the unreasonable ostentation of devotion which now appears so much to prevail in most of the states. The excitement of mind incidental to a people so jealous of their freedom, and at the same time so indefatigable in the pursuit of wealth, might be mitigated by a calm devotional spirit; whereas the extravagant demonstrations of religious enthusiasm, whilst they further affect and agitate the mind, are, we fear, too often put in the place of an even course of correct conduct, and a due government of worldly desires.

To all who are deeply engaged in the pursuit of the objects of ambition, whether power or possessions, the Eighth Chapter of Dr. Brigham's work may be recommended for careful perusal; and those who in simplicity and earnestness of heart have devoted themselves to religious exercises of which they already begin to feel the debilitating effects, will find much in it deserving of their most serious attention. They will see how directly the brain and nervous system are affected by all vehement emotions, and how variously and seriously the body becomes injured by this nervous disturbance; and surely it will then only require the exercise of reason to convince them that the Creator, whose bounty endowed the body and mind with so many faculties, does not demand the premature destruction of those faculties as a religious duty. To suppose that excitements, leading to exhaustion and religious melancholy, often ending in suicide, and sometimes in murder, can be pleasing to the great and benevolent Creator, is to admit an opinion unworthy of a rational and instructed people, and utterly inconsistent with the character of the Deity, either as revealed in the holy writings or in the great book of nature.

From these subjects, however, the fuller discussion of which does not form a part of our duty in this work, we turn to Dr. Brigham's publication on the Influence of Mental Cultivation and Mental Excitement upon Health, written a few years earlier, and the appearance of which seems to have been occasioned by his observing the injudicious attempts of parents in general, throughout the United States, to cultivate the minds of their children, at an early age, to an extent quite unsuited to their years and strength, and productive of the worst effects. We are glad to see, by the preface to the second edition, that a conviction of these errors begins to gain ground; although Dr. Brigham is still of opinion that there is much injury caused by too much mental labour being required of children, and by the repression of their natural gaiety and love of amusements. In the preface to the first edition, Dr. Brigham remarked that the females of the United States, especially those in cities, were in general more delicate and feeble than those of Europe; and, at the same time, that there was no country where females received such early and great intellectual culture, and had so little attention paid to their physical education. It appears, too, that in consequence of the openness of the road to the highest honours for those who evince a capability of serving the republic, efforts, much more strenuous than judicious, are systematically made to exercise and store the minds of children. Infants' manuals of all kinds are sold at the book-stores, on various subjects of science, and new and short methods of universal instruction are sure to find many patrons.

Addressing a population prone to such fatal mistakes in the manage-

ment of children and young persons, Dr. Brigham devotes several chapters to explanations not required by medical readers, but which are extremely well placed in a work intended to inform the public. He points out the reasons which have induced physiologists to consider the brain as the material organ by which the mental faculties are manifested, describes the condition of the brain in early life, and the known effects of its excitement. He urges that mental precocity is usually a symptom of disease, and not a promise of future distinction, and adduces examples to prove that the best and most powerful minds have not been formed by early culture carried to excess; and in support of these opinions he quotes many authorities.

The section of this little work which is calculated to make the strongest impression on his readers, is that in which he shews the influence of mental cultivation and mental excitement in producing insanity, nervous affections, and diseases of the heart. He states that the number of individuals deranged in mind in the United States is as 1 to 262 of the inhabitants, whereas in England it is but 1 in 820, and in Scotland 1 in 574. The moral causes of this great excess in America deserve investigation; and there can be little doubt that the greater number of them would be resolved into some excitement of the brain. It is an undoubted fact that insanity prevails most in countries where the mind is allowed the freest exercise, and where the people enjoy the greatest extent of political liberty. It is common in America, in England, and in France; rare in Russia, in Spain, in Turkey, and in China. Among the educated it is most prevalent in those whose imagination is most indulged, and whose reasoning powers are least exercised. In all times of national commotion it is more than usually common. It is rare in children and young persons, but is sometimes observed in them as the result of violent emotions, or of excessive application to study. Dr. Brigham ascribes its extraordinary frequency in America to four principal causes; 1, too constant and too powerful excitement of the mind, which the strife for wealth, office, political distinction, and party success, produces in that free country; 2, the predominance given to the nervous system, by two early cultivating the mind and exciting the feelings of children; 3, neglect of physical education, or the equal and proper development of all the organs of the body; 4, the general and powerful excitement of the female mind.

We are certainly not among those who consider the population of Great Britain as being yet over-educated; but it cannot be denied that even education may be pushed, or perverted, to the extent of pernicious excitement. There are also evils incidental to education, which are erroneously supposed to belong of necessity to education, but which are only the product of prejudices not yet worn out. Among these may be mentioned the long-continued confinement of children in charity and Sunday schools; in consequence of which, many poor children, without acquiring the blessings of real knowledge, incur the evils of a wearied or over-excited brain. Some of these evils are strikingly set forth in Dr. Brigham's statements respecting the city of Hartford, in the United States, of which the population is not more than seven thousand. Nearly all the children commence attendance at school as early as the age of three or four, and attend six hours a day. Many of them attend Sabbath schools, and go twice to church on Sundays, being thus occupied altogether about six hours. There are nine large churches in that little city, well filled twice

or thrice every Sunday; and meetings, twenty or thirty times a week, in some or other of these, on other days. There are two literary associations, where meetings are held once a week, open to all; at one of which lectures are given, whilst debates are held on political or historical subjects at the other. *Seven* large weekly newspapers are published, and *five* large religious papers. Several other periodical works are published at Hartford; and the papers and reviews of the other cities are eagerly read, and most of the English reviews and magazines are taken. These circumstances assuredly bespeak an astonishing degree of mental activity in so small a population; and it is a most serious question for the legislator to consider, whether it is in a direction to promote health and happiness, or whether, as Dr. Brigham apprehends, these multiplied means of stimulating the mind are slowly producing effects to be transmitted to another generation; not an increase of intellectual power, but increased susceptibility of the brain and nervous system; individual disease, and national degeneracy.

These observations imply no distrust of the benefit, not even a shadow of doubt concerning the positive duty, of educating every rational being; but the idea of education must not be limited to the mere exercising and storing of the mind. A complete education includes attention to the emotions and the moral feelings, and its objects are individual happiness and the general good; objects which unfortunately continue to be too much overlooked. Education is desired as the means of making a fortune, and of attaining a certain station; not as a means of securing simple independence, contentment, a tranquil mind, a habit of benevolence, well-governed affections, and the power of being useful to others. If, then, health is sacrificed, if ambitious views are disappointed, and morality not increased, it is unjust to cry out against education. A partial and unwise system of education produces but partial benefit; a more complete and wiser system would extend it; and such a system would discountenance and exterminate the evils of the false and worldly system to which the name of education is most improperly given. Then it would be found that the proper education of the body was favorable to the healthy condition of the mind; and a rational and cheerful exercise of the mind promotive of health of body; and that both were favorable to the happier emotions of which the frame is susceptible, and which are often annihilated by the destructive struggles made for worldly and selfish advantages.

Dr. Brigham's concluding chapter is chiefly devoted to the illustration of an opinion which deserves to be attentively weighed not in America only, but in Europe; namely that dyspepsia, far from being invariably a disease of the stomach, is often the result of a disturbed and irritated brain. We are ourselves convinced from observation that what are called sick headaches, occurring in irritable individuals, are often the mere product of disturbance of the nervous system. Nor do we in the least degree doubt that in this busy age, a very great proportion of the cases of indigestion, debility, and nervous pains of which individuals complain, are but the effects of too much labour of the brain; and we entirely go along with the author in believing that the most careful diet will fail to relieve many forms of indigestion unless the existing pressure and irritation can be removed from the mind. This view is entirely borne out, too, ~~by~~ the fact, that comfortable living and freedom from care are of all cir-

cumstances the most favorable to longevity. Of these truths we trust the readers of Dr. Brigham's very useful works will become convinced to their advantage. We are truly glad to see the medical men of the United States stepping boldly forward, in the face of many prejudices, to instruct the public concerning their real good. It has ever been the just praise of the profession that its members have done so; and those who cultivate medicine in the United States seem actuated by the same desire to do their duty, and at the same time fully capable of performing that duty efficiently.

ART. IV.

De la Prostitution dans la Ville de Paris, considérée sous le Rapport de l'Hygiène publique, de la Morale et de l'Administration; ouvrage appuyé de Documens statistiques puisés dans les Archives de la Préfecture de Police; avec Cartes et Tableaux. Par A. J. B. PARENT-DUCHATELET, &c. *Précédé d'une Notice historique sur la Vie et les Ouvrages de l'Auteur, par FR. LEURET.*—Paris, 1836. 8vo.

On Prostitution in the City of Paris, considered in Relation to Public Hygiène, Morals, and Police; founded on Official Documents; with Plans and Tables. By A. J. B. PARENT-DUCHATELET, &c. *With a Biographical Notice of the Author, by FR. LEURET.*—Paris, 1836. Two vols. 8vo. pp. 624 and 580.

THIS work is the production of a very remarkable person, who attached himself with singular zeal to the investigation of the effects upon society of many moral and many physical nuisances. In the book before us, the very title of which is calculated to alarm the general reader, the author lifts up the veil which usually conceals from the well-regulated portion of society the mode of life of the abandoned and the profligate, and discloses scenes of vice, and of concomitant wretchedness, painfully instructive to all, and from the contemplation of which the philanthropist, and especially the medical philanthropist, should not affectedly turn away. He withdraws us for awhile from the ordinary ways of men, from the honest light of day, from the pursuits which stimulate honorable competition, and from the innocent gaiety which dreads no public or private censure, to the darkest retreats of infamy, to the dreadful walks of unholy industry, to dens of vicious gratifications, which would fain shun the eye of God and man. He takes from before us the accustoméd images of female loveliness and appropriate virtue, and the charm of unblemished womanhood, and shews us horrid visions of dissoluteness, and the ruin of young and innocent hearts, and the fierce abandonment or strong depravity which alike banish every womanly attribute. But, with these pictures, he also shews us the care of an enlightened government, unceasingly employed to lessen all the vices and miseries incidental to great cities, and the never-wearied labour of many excellent persons who seek to reclaim the unfortunate, and bring back the depraved to habits of virtue.

The "*Annales d'Hygiène publique*" contain many of the results of the previous labours of M. Parent-Duchatelet, whose whole life appears to have been devoted, with the ardour of an enthusiast, and with an industry that no difficulties could discourage, to the amelioration of the physical

The first step in the registration process is to obtain a birth certificate. For Americans living in the city of Rome, this can be done at the Italian consulate in New York City for a fee of \$100. For those living in the United States, the process is more complicated. It is necessary to obtain a birth certificate from the Italian consulate in the country of birth. This can be done for a fee of \$100. It is also necessary to obtain a birth certificate from the Italian consulate in the country of residence. This can be done for a fee of \$100. The process of registration is more complicated for those living in the United States than for those living in Italy. The process of registration is more complicated for those living in the United States than for those living in Italy.

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4 - The Commission is of the opinion that the conditions in life from which the greatest number of cases arise, for this may throw light on the social conditions, the economic and from the legislator to remove the causes. It is, however, a very difficult, on account of the numerous exceptions, to arrive at too much of this data the way shown by a decrease in the number of the registration of prostitute should be a measure to solve the problem of the

parents, attested by two witnesses; the second witness, however, being generally no other than one of the mayor's officers, those functionaries acquiring, apparently, a facility in making attestations by dint of witnessing them in their daily round of duties. It would appear that every step of the author's enquiry was destined to overthrow some popular theory. Imagination had invested many of the public women of Paris with high birth and connexions; whereas, out of 828 registrations, only four had any pretensions to rank, and the rest were nearly all from the different classes of artisans. Out of 2,500 provincial registrations, the results were the same. That poverty and ignorance prevail in the unfortunate families of which so many daughters desert the paths of virtue, is proved by the fact that one-third of the fathers were unable to write their names, and this in Paris, where primary instruction is almost universal: in the departments the proportion of those unable to write was still greater. One-fourth of the prostitutes of Paris were found to be of illegitimate birth, of whom only one-half were acknowledged by their fathers; a fact which strongly exhibits the train of unhappy consequences dependent on illicit intercourse. Of 3,084, whose occupations previous to their entering on a course of prostitution is mentioned, only three possessed property, and the richest had 1000 francs (40*l.* sterling) per annum: the rest were chiefly workwomen of various kinds, and servants, and the greater number were employed in sedentary occupations, in workshops, poorly paid, and liable to be deprived of work by fluctuations in trade and fashion. They were also, for the most part, without education; 2,332 out of 4,470 were unable to write; and consequently they had few resources against absolute want. A curious table at p. 86 indicates the ages at which 3,248 inscribed themselves as common prostitutes. We observe that there were 2 at ten years, 3 at eleven, 3 at twelve, 6 at thirteen, 20 at fourteen, and 51 at fifteen. The number then increases to above 100 at each age; at twenty, it is 389; it falls at twenty-eight years to 101, and at twenty-nine to 57; goes on decreasing until at forty there are only 9, and at fifty only 4. A few inscriptions occur after the age of fifty, but they are chiefly of persons imported from the departments, who have probably been of loose life for many years.

Although it is highly probable that many prostitutes become such in consequence of a love of idleness, and pleasure, and fine clothing, a great number are driven to a life for which they have no inclination by the extremity of misery. Many are brought from the country by their seducers, and, being abandoned in Paris, and without resources, are an easy prey to the procuresses, who are ever on the watch for them. Many also, it would seem, go upon the town to escape the unkind or unwelcome discipline of their parents. Hospitals, and houses for servants out of place, afford opportunities of which the older bawds dexterously avail themselves. Very often an ill-managed household causes young women to abandon their homes, where they have been already accustomed to bad examples. Some there are, also, who expose themselves to prostitution in order to support their children or their parents; and some few who, in following the same wretched life, appear only to obey the depravity of their physical temperament.

M. Parent-Duchatelet seems very unsatisfactorily to dispose of the

question of prostitution depending on a high state of civilization. The truth is, that in all states of mankind, savage and civil, there is a strong tendency to this error in morals; and it is probable that the remedy will not be found until communities are so happily ordered that early marriages cease to be looked upon as crimes, and children as misfortunes. The nearly equal proportion of male and female births would seem intended to provide for the marriage of many who, in all forms of society, pine in singleness; but no means have yet been discovered for ensuring an amount of individual prosperity which gives encouragement to the union of all nubile persons; and, so long as this continues, many women must fade unmarried, and many men and many women will continue to seek gratifications that entail less ruin upon them than marriage threatens.

M. Parent-Duchatelet devotes the second chapter of his work to the *Manners and Habits of Prostitutes*, which, as might be expected, present a singular mixture of the effects of evil associations with the results of early impressions and original character. Amidst shameless vices, some flowers of virtue still grow wild. The base stamp has not wholly superseded the first divine impression; and, in the wreck of many female attributes, there are surviving affections which show that the heart cannot become all evil. But these redeeming features seldom become known to those likely to reflect much upon them; they make a momentary impression upon the libertine, but no more. It is the philanthropist, who visits these victims of vice in hospitals and in prisons, in sickness and in sorrow, who becomes fully acquainted with the depths of the heart wherein lie thoughts which have seldom before been uttered. The unfortunate women also entertain, it seems, the keenest sense of their lost and abandoned condition, and are often only to be roused from the extremest despondency by the hope of being once more restored to honest life. The greater number of them have had no religious education: early sold to vice by vicious parents, even the idea of a God has not been instilled into the minds of many of them. They are disposed to fanaticism, and seldom inscribe themselves, or go to the dispensaries for examination, on a Friday. Notwithstanding their general abandonment of manners, all womanly modesty is not yet banished, even in the hospitals for the sick, where it is perhaps put to the severest proof; and the public indecencies which characterized the period of the first revolution, but which were not unknown before that time, are witnessed no longer. As few of them have received any education, their irregular lives produce the most desultory mental habits; and noise, variety, and excitement seem to become essential to their existence. In prison, in the hospitals, or in the penitentiaries, "it is impossible," says M. Parent-Duchatelet, "to describe the extent of their loquacity:" but of late years their conduct in these situations has become more orderly.

Among the customs traceable to a kind of sentiment, those of them who consort with the soldiers adopt the habit of having figures or initials marked in blue upon their shoulders or under their breasts, with devices emblematical of constancy. These marks, as might be expected, often become undoubted proofs of the weakness of such constancy; twenty or thirty vows of "love till death" being sometimes found thus inscribed on the body of the same individual. The older prostitutes have often

inscribed upon themselves the names of women for whom they entertain a friendship, and in these cases alone the seat of the inscription is between the pubes and the umbilicus.

The intervals not employed in their peculiar avocation are generally passed in idleness; sometimes, however, in reading; and it is remarkable that the books found among them are never of that immoral class for which the Parisian capital enjoys an unenviable celebrity. The Parisian prostitutes are described as negligent of personal cleanliness, an attention to which, in this country, often gives advantages to loose women above those of better character. They are also accustomed both to eat and drink to excess; and a disregard to truth, and a proneness to anger, are enumerated among their faults. On the other hand, they are charitable and generous to excess, often giving clothes and money to those of their own class, from whom they expect nothing but ingratitude, and sometimes making daily donations of bread to individuals or families more wretched than themselves. They rarely betray one another. Those of them who become mothers perform all their maternal duties with great solicitude, and look upon their new position as an advance towards a more decent kind of life; and in these circumstances both the mother and infant are overwhelmed with the kind attentions of her unfortunate companions. Contemplate human beings when and where we may, we see the same feelings struggling through the accidents which surround them. Notwithstanding the obstacles that may readily be imagined to be in the way of those virtuous friendships from which the human heart seeks its best consolations, the strong desire of attaching themselves to some one in particular, united with the wish for protection, often unites prostitutes to men of ferocious character, whom they supply with the means of living, and whose ill-treatment they endure with a patience amounting to infatuation. These men lead idle and abandoned lives, without any feeling of shame, deriving from the poor creatures who are attached to them the money which they lose at the gaming-table, or spend in sensual gratifications. There is nothing very peculiar in these circumstances, of which notorious examples might be adduced even from the ranks of the aristocracy of our own country. The older prostitutes would seem to be adepts in the art of gaining the affections of younger women, between whom and themselves unnatural attachments are asserted not unfrequently to exist, attended even with more than ordinary jealousy: among those who are depraved to this extent, the most unpardonable offence is the transference of the affections of either party to a man.

Our insular ignorance makes us somewhat at a loss to follow the divisions adopted in the chapter wherein are described the different ranks and classes of the prostitutes of Paris. The *femmes galantes* seem to be kept mistresses; but the *femmes à parties*, whose manners and mental accomplishments add to the seductions of the gaming-houses, are unknown in our manners. The *femmes de spectacles et de théâtres*, also, appear to be a class distinct from those known among us, and whom there could be no difficulty in enumerating among prostitutes; whereas, in Paris, they escape the vigilance of the police no less than the two higher classes just mentioned: "mulier quæ non palam, sed passim et paucis, sui copiam facit, actio competit adversus eum qui eum meretricem vocavit;" a very nice distinction. The numerous other divisions

dwelt upon by M. Parent-Duchatelet require little notice: they are as various as the different classes of society to which they offer opportunities of vice. An ascent or descent from one rank to another seems an uncommon event: each prostitute takes her place at once, and keeps it, although all aspire to the dignity of *dame de maison*; in other words, to being some day at the head of an establishment of their own.

The physiological peculiarities of prostitutes are not very remarkable, and they are as easy, we think, to be accounted for as the psychological characters which have been already mentioned. Their general embonpoint after a certain age arises naturally enough out of good eating, drinking, and indolence, without any necessity of ascribing it to the use of mercury for the cure of disease. The change of their voices is, we believe, chiefly observable in those who drink and are exposed much to the night-air. It is akin to the "gin-voice" so well known in London.

In the section on the colour of the hair and eyes of prostitutes, we find nothing worthy of comment. That on the sexual organs contains some important facts, hitherto unknown to medical jurists. It commences with an instructive anecdote. Two young women were grossly insulted in the street, and proclaimed to be prostitutes. The offence became the ground of public complaint; and the young women, asserting that they were virgins, offered to submit to a medical examination. The examining officer, a man of experience and discretion, pronounced it impossible to give a decided opinion concerning one of them, but he suspected that the other was not a virgin. Some time afterward it was proved that both of the young women were common prostitutes at the time of the examination, and had been repeatedly affected with syphilis. M. Parent Duchatelet had repeated opportunities of examining young women after forcible defloration, and he generally found that the details given to him by them (they were chiefly children,) gave him more information than the state of the sexual organs. He observes, that no opinion is more generally received than that the sexual organs of prostitutes *must* present peculiar alterations; and yet the most careful attention to this subject, on the part of the physicians and surgeons of the dispensary, and police hospital, and prison infirmaries, has proved that "the genital organs of prostitutes do not present any special alteration or any change peculiar to them: in this respect, there exists no difference between them and the most respectable married woman." (P. 214) The frequent employment of the speculum has also proved that the width or narrowness of the vagina vary in different individuals, without reference to the length of time during which they have been accustomed to indiscriminate sexual intercourse. Young prostitutes, who have never been pregnant, have not unfrequently a large vagina, and old prostitutes sometimes retain what is erroneously considered the characteristic smallness of virginity. These are facts of the highest importance, and should be well remembered by medical witnesses.

The test of pregnancy, mentioned on the authority of M. Jacquemin, namely, a violet or deeper colour of the vaginal mucous membrane, would admit, one would suppose, of easy verification: its value in cases of suspected, doubtful, and simulated pregnancy, is evident.

Considerable difficulty seems to have been met with by M. Parent-Duchatelet in investigating the general condition of prostitutes as respects

the function of menstruation. In general, however, it would appear that this function is seriously interrupted, and often for a great length of time. Of those who enter the Penitentiary, all are in the state of *amencrrhoea suppressionis*, and they remain so for a considerable period. This irregularity is accounted for by the various imprudent practices and irregularities of the lives of prostitutes; and in some instances, perhaps, by the artificial means had recourse to for the express purpose of preventing frequent periodical interruptions of their mode of obtaining a livelihood.

These facts are accordant with the general, and, we should say, the correct opinion of the infecundity of prostitutes; the exceptions to which we deem M. Parent-Duchatelet to have raised into too much importance. These exceptions are very rare; and the principal midwife of the Maternity Hospital, where the delivery of prostitutes who have become pregnant generally takes place, reports that their labours are usually difficult, that it is commonly necessary to employ the forceps, and that the infants seldom survive. Many, however, are said to become impregnated, and to have abortions at an early period. They generally assert that they know by whom they have become impregnated, and the person named is usually some one to whom they are attached. The mortality among their unhappy children is excessive: of eight born in prison, four die within the first fortnight, and the other four within the first year; of ten infants born in the hospital in one year, five died almost as soon as born, and the other five before the complete recovery of the mother.

The most frequent maladies to which prostitutes are subject are syphilis and the itch. They are also subject to uterine hemorrhages; such being frequent in the hospital of the prison in which they are received, and often occurring at the age of fourteen or fifteen, at which age they are unusual in other women. Not unfrequently they are affected with tumours of the labia majora, on one side, enlarging at the menstrual periods, and sometimes attaining a considerable size. They are indolent, rarely fibrous, and ordinarily contain a thick albuminous fluid, extraordinarily fetid. Abscesses of the labia are of frequent occurrence, and heal without serious consequences: those which form in the recto-vaginal partition are more troublesome, frequently degenerating into troublesome fistulæ: these are often observed to be co-existent with a hard engorgement of the labia; and their conjunction with phthisis is remarked in numerous instances, (*presque toujours*.) It is a commonly received opinion in all countries, that prostitutes are particularly obnoxious to cancer of the uterus; but, according to M. Parent-Duchatelet, this notion is not well founded, nor are prostitutes peculiarly liable to elongations, irritation, or inflammation of the neck of the uterus. The frequent occurrence of uterine cancer in unmarried women, examples of which were formerly very numerous in religious establishments, throws considerable doubt on the theory of such supposed occurrences in prostitutes.

Prostitutes do not seem to be peculiarly liable to hysterical or spasmodic attacks. They were at one time frequent in the Venereal Hospital, but M. Cullerier cured them, or rather prevented them, by the threat of plunging the patients so attacked into cold water, and branding them with hot irons. His success was equal to that of Boerhaave. Before this was

threatened, every patient had fits after being a few weeks in the hospital, and they called them "coming out of their mercury," (*revenir de son mercure*.) Those who wholly abandon their vicious habits, and go to the Penitentiary, become subject for a year or two to hysterical seizures and cerebral congestion, disturbing in some degree the intellectual functions. Mental imbecility is frequently observed in prostitutes somewhat advanced in life. Mental derangement is not uncommon. Of 105 received into the Salpêtrière, from 1811 to 1816, the youngest was sixteen years of age, and the oldest sixty-two:

Between fifteen and twenty years of age, there were	4
— twenty and twenty-five,	15
— twenty-five and thirty,	26
— thirty and thirty-five,	25
— thirty-five and forty,	18
— forty and forty-five,	10
— forty-five and fifty,	5
— fifty and fifty-five,	0
— fifty-five and sixty,	1
— sixty and sixty-five,	1
	<hr/> 105

The causes of the insanity were,

Unknown, in	37
Fear,	3
Licentious excesses,	3
After delivery,	8
Excessive misery,	11
Mercurial treatment,	3
Abuse of wine,	13
Mental vexations, (<i>chagrins profonds</i>),	27
	<hr/> 105

Among the 27 last mentioned, the vexation arose in 14 from the desertion of their lovers; in one it was occasioned by being recognized as a prostitute by one of her own countrymen; in another it was produced by her being for the third time delivered of a dead child. The form taken by the malady was,

Melancholy, in	36
Mania,	43
Dementia,	18
Not distinctly defined,	8
	<hr/> 105

It is a curious fact in the annals of prostitution, that bodily infirmities sometimes seem to be recommendations. Lame women, whose legs are defective in length or deformed, and others still more lamentably afflicted, have been known to be in particular request. Pregnancy is well known to enhance their value. Among the common women of Paris, there was one who was deaf and dumb.

Syphilis, in all its forms, is extremely prevalent among the Parisian

prostitutes, and greatly aggravates the evils of syphilis; but their general health does not appear to be worse than that of other women. They even suffer less than many married women, and than those employed in sedentary occupations; and they recover quite as well from attacks of ordinary illness.

There are considerable portions of M. Parent-Duchatelet's work which we feel ourselves compelled to pass over without remark, although containing much curious and valuable information, because such information chiefly concerns the general reader. We have already referred more than once to the public registry of the prostitutes of Paris, a plan suggested so long ago as 1765, and again in 1771, for the protection of public morals, and for the superintendence of the health of the prostitutes. After a period of anarchy, an imperfect plan of registration seems first to have been adopted in 1796, but it received great amendments in 1804, and was further improved in 1828. This system is too remarkable to be left out of our notice of the work before us. Of those inscribed on the register, some present themselves for that purpose, some are brought by the mistress of an establishment, and some by the public inspectors. The woman's name, age, place of birth, occupation, and residence are enquired into. She is asked whether she is married or single, or a widow; if her father and mother are living, and how they are occupied; whether she lives with them, or when and why she left them; if she has had or has any children; how long she has lived in Paris; whether any one in Paris has authority to claim her; whether she has ever been arrested by the police, how often, and wherefore; if she has already lived the life of a prostitute, and how long; if she has ever had or has any venereal affection; if she has received any education; what motives determine her to register herself; with many other questions suggested by her answers, from which the practised interrogators obtain a full knowledge of her character and habits, and are at no loss how to class her. She is then visited and examined by medical men appointed to that duty, who report her state of health. Various other measures are taken to ascertain the truth of the depositions; such as writing to the mayor of the alleged town of birth, &c. Those who are diseased are sent to the hospital; the hardened and corrupt are punished, and every effort is made to reclaim the young, the comparatively innocent, or those who come to be inscribed in a fit of anger or despair; and they are often sent to their families. Once in two or three years an instance occurs in which the woman offering herself for inscription declares herself, and is declared by the medical examiners, to be a virgin: in this case the inscription is refused. The greater number, however, are women of loose life and diseased. In a thousand inscriptions, about 600 are inscribed of their own accord, and 350 by the mistresses of establishments.

The mistresses of establishments (*dames de maison*,) are persons who affect considerable consequence, and exercise in their establishments despotic sway. Their letters of application for licence abound in high-flown language, and they often assign noble, honorable, and even religious motives for desiring permission to open a house of ill-fame. Some lay much stress on their own excellent character and grave manners, some on their regard for the health of the public, and some on the duty of making a provision for their children. M. Parent-Duchatelet inserts

several of these applications; and among them one from a venerable lady of eighty-two, who asks leave to keep her daughter and granddaughter in a state of genteel prostitution on account of her advanced time of life, and because she feels that she must soon "appear before her Creator," and therefore wishes to provide her children with the means of existence. A curious map is given, indicative of the quarters of Paris in which prostitutes most abound, and which shows how much they congregate where trade and wealth are greatest.

Referring the reader for fuller particulars on these and many other subjects connected with the section of society which occupies the author's attention, to the two thick volumes themselves, we believe a stronger interest will be felt in that part of it which relates to the sanitary surveillance of the health of prostitutes, which is one of the great objects of the system of registration, for the common preservation of society. Casuists may certainly maintain the impropriety of interfering between vice and its natural punishment, but the interests of communities as much demand that medicine should step in between libertinism and consequent suffering, as between idleness and luxury and their consequences. In either case, to withhold aid, would be to involve the innocent as well as the guilty in countless miseries. It is justly observed by the author, that no pestilence ever committed more havoc than syphilis; of which the effects are most frequently developed in the young and strong, and transmitted by them to a tainted and frail and innocent progeny. Nor is the dread of such evils salutary, or in any material degree prohibitory of illicit pleasures. Paris, with its registers and sanitary regulations, is not more vicious than London or any other large capital; and, at the best, the fear inspired by disease can only operate to prevent intercourse with common women, the least widely hurtful to society of all modes of unlawful licentiousness, since it corrupts morality the least, and the least disseminates wretchedness throughout virtuous families.

Although the question of sanitary regulations had frequently occupied the attention of the French government, they were only fully organized about the commencement of the present century, when a provision was also made for the expenses attendant on them by a tax of three francs (two shillings and sixpence,) a month on each separate or isolated prostitute, and twelve francs on each *dame de maison*. The collection of this tax was intrusted to two surgeons, who were appointed to the duty of making periodical visits and examinations, and who for a time contrived to exact a large annual sum from the wealthy prostitutes, and entirely neglected the poorer; and, although they established the dispensary, they shamefully neglected the duties it imposed upon them, and especially that of making proper reports; but still contrived to make about 1200*l.* a year by the institution. In 1810 the dispensary was wholly reformed; and it was then ordered that every prostitute should be visited twice in each month; that a regular note of these visits should be sent to the prefecture; that the tax should be collected by a proper officer, and the surplus, after payment of the salaries of the medical men, should be applied to the improvement of the institution. The first physician and first surgeon were to have each a salary of 6000 francs (240*l.*); the second physician and surgeon, each 3000 francs; two students, one of medicine and one of surgery, each 1800 francs; and the apothecary, who

also was to keep the registers, 2400 francs. M. Pasquier, then at the head of the police, and to whom belongs the honour of improving this establishment, required weekly reports from the dispensary, and instituted a permanent commission, which was to meet monthly, and to superintend the working of the whole plan. During the four years in which M. Pasquier remained in office, the dispensary continued to be so well regulated that the number and severity of the venereal cases in Paris was sensibly diminished. The invasion of the Allies in 1814, and again in 1815, neutralized these good effects; but M. Anglès, who had succeeded M. Pasquier, met the evil by increased vigilance, causing the commissioners to meet twice in a month, attending their meetings himself, and increasing the frequency of the visits of the medical officers to one every ten days.

English medical writers and students, who resort for a time to Paris, have seldom an opportunity of witnessing the mode of inspection adopted by the official medical examiners, whose duties are partly performed at the dispensary, partly in the private establishments, and partly at the dépôt of the prefecture of police. All the free or isolated prostitutes are bound to appear at the dispensary, for examination, twice in a month; those also are examined there who are inscribed for the first time, and those who are going into or quitting the establishments of the *dames de maison*; and also those who are retiring from prostitution, those who are going into the country, those who have been in prison, or in the hospital, or in temporary concealment. In the prison and at the hospital, the inspection is made in a private room, on a kind of table or bed, raised to the height of a *mètre*, resembling the table employed in the operation for the stone, with the addition of a small board in front, for the feet, and steps at the side. Many advantages are considered to arise from the adoption of this kind of table, which facilitates the employment of the speculum when necessary, and permits an inspection of the state of the anus and groins; the sensibility of the latter especially being often found indicative of uterine and other irritations. At the dispensary, however, this table cannot be employed, as the bonnets of the better-dressed prostitutes would be spoiled by the supine position; and they are therefore indulged with a high sofa, with a low reclining back, to which they ascend by several small steps, purposely devised to put the power of stepping up without pain to trial. It is calculated that each examiner may examine and register twenty-five patients in an hour; but, as the subjects to be examined come at all hours, and generally with repugnance, there are always two or three supernumerary medical officers in waiting, to prevent delay. Each prostitute has a card, on which the date and result of such examination is inscribed; and these are also copied into a book.

Every house kept by a *dame de maison* is visited by an examiner once a week, at a fixed hour; and an exact register is kept of every particular. If any one of the prostitutes is found diseased, the fact is notified to the mistress of the house, who is liable to heavy penalties if she permits any one to have access to her; and the woman pronounced to be affected must appear that day at the dispensary, and be again examined, preparatory to immediate removal to the hospital. If they evade this

appearance at the dispensary, they are sent for, and, when cured, are punished for disobedience.

The examination at the *dépôt* of the prefecture was instituted, that the opportunity might be thus taken of submitting loose women to examination who had long avoided it. The *dépôt* is a kind of watch-house, or temporary prison for offenders taken up by the police.

Of this system the result has been, that, in twenty years, more than 20,000 women affected with syphilis have been promptly attended to, and prevented from spreading the disease. In the course of their experience, the inspectors have found that there are women who never become infected, whilst others are so constantly liable to infection that they almost pass their lives in the hospital. Of 250 received into the Veneral Hospital, eight had been on the town more than six years before becoming infected. The physicians of the dispensary are of opinion that infection is resisted by one-half of the public prostitutes. Women appear to be less liable to infection than men. All the medical examiners agree in stating that the dreadful cases of caries, &c., formerly so common, have become, and are progressively becoming more rare. As regards the influence of age, some of them think that buboes are only found in the young, and particularly those of a lymphatic temperament; rarely twice in the same individual, and less often in women than in men: they also consider vegetations as more common in very young women than in those who are more than twenty years of age. But other observers doubt the correctness of these distinctions. It is somewhat singular that, with all the exactness which characterizes the Parisian regulations, an attempt to ascertain the relative merits of the mercurial and non-mercurial methods of treating syphilis should have entirely failed.

Without extending our notice of M. Parent-Duchatelet's book far beyond the limits we are compelled to assign to it, we are unable to make any remarks on those not inconsiderable portions of his work which relate to the regulations of the police, and to the efforts made or making for the reformation of the unfortunate women to the illustration of whose life and condition he devoted so much time. The chapters relating to these subjects are of extreme interest to the general reader, and we have thought it proper to limit our analysis to matters more closely connected with the studies and duties of the medical practitioner, for whom the facts contained in this publication present much matter for useful reflection. As a specimen of industrious and careful observation, it is beyond all praise, and, with the exception of occasional diffuseness, there is nothing in it for the critic to object to. All the curious particulars which it comprehends are treated of with delicacy and judgment; and we can but lament that Paris was so soon deprived of so valuable a citizen, and our profession of so good and enlightened a man.

ART. V.

The Works of JOHN HUNTER, F.R.S.; with Notes. Edited by JAMES F. PALMER, Senior Surgeon to the St. George's and St. James's Dispensary, &c. &c. In Four Volumes, illustrated by a Volume of Plates, in quarto.—London, 1835. Vol. 1. 8vo. pp. 643.

IN our last Number we gave a brief notice of the edition of Hunter's works, of which the first volume is now before us. This volume contains the Life of the author by Mr. Drewry Ottley, and the surgical lectures delivered by John Hunter in the year 1786-7, and now first published from ms. copies taken by some of his pupils at the time. In our next number we hope to notice these lectures: on the present occasion we shall confine our attention exclusively to the memoir of Mr. Ottley.

The time which has elapsed since the death of John Hunter, is favorable to the drawing up of an accurate and faithful memoir of him. Nothing seems more rare than a candid and impartial biography of any man who has recently died. It is sometimes undertaken to flatter or soothe the survivors, sometimes to commemorate the friendship of the biographer, and sometimes to gain reputation on the credit of the deceased. Of the biographers, some are mere panegyrists, and some display the spleen and vanity of rivals whose inferiority derives consolation from abating the merits of the departed. The great genius of John Hunter exposed his memory to most of these accidents: his tomb was covered with praises, some only of which were just; and assailed with detraction from which his undeniable greatness ought to have spared him. He received posthumous honours from a few who sought only to mortify others who had been the rivals of him, and of whom they were the rivals; and Mr. Jesse Foot took the trouble of writing a life of him, in order, apparently, to shew the deluded world how much it had erred in deeming him a great man.

There is nothing uncharitable in the supposition that Sir Everard Home had his own reasons for making the history of his departed patron uninteresting; for it is unquestionable that he meant to assume no small part of the true fame of John Hunter to himself. Dr. Adams, on the other hand, is accused of displaying everywhere marks of indiscriminate and unbounded partiality.

In all these cases, time is still "the avenger;" abating unmerited praise, withering the short-lived efforts of envy, and establishing just fame. Contemporaries may magnify or abuse, but posterity judges calmly; exempt, in the case at least of private individuals, from the delusions either of the good and evil passions, and therefore capable of estimating the life and the character at their real value.

John Hunter was the son of a small farmer at Long Calderwood, about eight miles from Glasgow, and the youngest of ten children. He was born in 1728. We smile at the assertion of his being "descended from the ancient family of Hunter of Hunterston," and derive yet more amusement from Mr. Wardrop's astonishment (expressed in the Life of Baillie,) at the extent of talent united in Dr. Baillie's (the nephew of Hunter) family and connexions, seeing that he makes it imparted by marriage to Sir Richard Croft, who married Mrs. Baillie's sister, and to Mr. Denman, who "was Dr. Baillie's brother-in-law." These commencements are like

the invocations of the muse in the beginning of an Epic; equally trifling and equally fanciful; but indeed the blame of them rests, as we know from some experience of our own, less with the biographer than with the friends of the persons to be commemorated, who are dissatisfied to have merely to boast of a genius in the family, and always desiderate a fair genealogical tree. The names of William Hunter and of John reflect back on their humble ancestors far more honour than they could borrow from the Hunters of Hunterston, even if they were proved to have been hunters ever since the days of Nimrod.

We are almost again inclined to accuse Mr. Drewry Ottley of a desire to speak too magnificently when he mentions John Hunter, a boy of ten years of age, engaging, after the death of his father, "in country sports," and going, at the age of seventeen, with little preparation but such sports, "to the house of his brother-in-law Mr. Buchanan," (which Mr. Buchanan was a cabinet-maker in Glasgow), "under the hope of being able to assist in freeing him" (the said Mr. Buchanan,) "from the pecuniary difficulties into which his convivial habits and inattention to business had led him." We cannot affect surprise that this hopeful scheme, admitting it ever to have entered the mind of Buchanan or his nephew, was unavailing, and that "Mr. Buchanan soon after resigned his business," and became a teacher of music and clerk to an Episcopalian chapel. The object of this romantic story is, we suspect, to free the immortal John from the suspicion of having worked in the worthy cabinet-maker's shop; whereas, in truth, if John had worked at a cobbler's stall his fame would not have been deprived of a single ray of brightness. "It is probable," says Mr. Drewry Ottley, with a sensitive regard for the Hunters of Hunterston, "that whilst here, Hunter, who prided himself on his manual dexterity, assisted his brother-in-law in his workshop." So it seems that John, after seven years spent in rural idleness, went to Glasgow to reclaim his uncle's affairs, settle his books, and give him his valuable *assistance* in the making of cabinets. Truly we think quite as well of the old version, which Mr. Ottley discards; and can well believe that at seventeen years of age, John, who had a rooted dislike to the Latin *accidence* and *Corderius*, and was muscular and active, and somewhat at a loss how to provide for himself food and raiment, repaired to his uncle to be instructed in his trade. So honest an intention needs no colour of excuses.

Meantime, William Hunter, his elder brother, who was fond of learning, was studying at Glasgow, was the pupil of Cullen, (then a practitioner at Hamilton,) and laying the foundations of his future distinction. In Mr. Ottley's account of William, the magniloquent is still too conspicuous. The "family property" had fallen to him, but "his mother continued, with his permission, to reside on the estate;" and yet William Hunter, good man, on receiving seventy guineas as entrance fees after the delivery of his introductory lecture, unaffectedly remarked that he had never been master of such a sum before. The virtuous poverty from which such a man sprung, his industry and perseverance, and their astonishing results, render his name far more illustrious than any descent from privileged freebooters, even if he had attained the dignity of a stupid country gentleman, rich in money and in lands, and a justice of the peace. It is strange that in English biographies these puerilities always meet us.

No nation is so trading, or so ashamed of trade. Foreigners often and justly remark, that with us, talent gives no place in society, confers no rank, unless associated with wealth, or supported by the supposition of high connexions.

The slumbering ambition of John Hunter was soon roused by the success of his brother William in establishing a school of anatomy in London. He scorned his "country sports," abandoned all ambition as to cabinet-making, forsook the auditing of distracted accounts, if such had ever filled or plagued his mind, and, being now twenty years of age, wrote to his brother and offered his services in the dissecting-room, little dreaming what triumphs there awaited him. Assisted in anatomy by William Hunter, and instructed in surgery by the great Cheselden, at the Chelsea hospital, his extraordinary powers were gradually called into exercise; the society of his brother's associates contributed to stimulate and to inform his mind; and his natural energy made him the delight of students and resurrection-men. His strong understanding was further improved, we may suppose, by his observation of the practice of Pott, at St. Bartholomew's; for, although that celebrated man was not yet so well known as he afterwards became, he appears to have been already among the first to simplify the practice of surgery, by a reference to the objects and efforts of nature.

In 1753, when John Hunter was twenty-five years of age, the notable design of polishing him into a scholar seems to have been entertained by his brother; and he "entered as a Gentleman Commoner at St. Mary's Hall, Oxford." But John's proud and rugged spirit was not to be tamed by the classics, and he never looked back upon this attempt with much gratitude. "They wanted to make an old woman of me," was his remark to Sir Anthony Carlisle many years afterward, "or that I should stuff Latin and Greek at the University, but these schemes I cracked like so many vermin as they came before me;" and John suited the action to the word. In fact, he had been the hero of the medical and of the dramatic theatre among the pupils, assisting them to damn dull plays in the gallery, and known familiarly among the dissectors as "Jack Hunter," and he was resolved that no one should make Jack a gentleman.

About this time he attached himself to St. George's Hospital, the only institution which held out to him a reasonable prospect of an appointment; and here he became well known as an anatomist, and pursued those investigations into the mode of connexion between the placenta and uterus, which ended in the discovery which twenty-five years afterwards so unfortunately became the subject of the rival claims of his brother and himself, in the assertion of which these distinguished men exhibited an animosity that has too often disgraced the minds of men of science. For three years these brothers maintained their mutual unforgiveness; John seems to have most regretted the estrangement, but William left the world unappeased.

Yet nature appeared, in her contrasted gifts to these two great anatomists, to have designed them to act through life in fraternal copartnery. William was learned, eloquent, and polished, and John was unrivalled in the dissecting-room. John was fitted to labour untired in dissection and physiological observation, and William to apply these labours to

practice, or to embody their results in lectures calculated to spread the knowledge over all Europe; whilst, for a love of science, for philosophical habits of thought, and for mental power, they were equally remarkable. Thus prepared, notwithstanding the jealousy which each perhaps entertained of the other, they did in fact labour for many years and on many points in unison. John's indefatigable dissecting knife was continually laying open to him some of the mysteries of animal bodies; and when other anatomists, more learned than he, happened to arrive at the same point at the same time with him or his brother, the sharp and polished pen of William defended their claims with great power and astuteness. Hence arose the mighty feuds with the Monroes concerning the injection of the tubuli testis with mercury, and the true office of the lymphatics; hence the war with the amiable and accomplished Pott, whom they accused of stealing from them the knowledge of the true nature of congenital hernia; the truth being that Haller had in this particular preceded them all three. Such are the fretful labours of controversialists, who allow the love of fame to predominate over the pure love of truth: but here, also, posterity does justice to all parties. No one now wishes to disturb his mind by reading the disputes which engaged the pens and embittered the lives of so many of the physiologists of the last century, and yet there is perhaps no one of them to whom the present age is unjust. It would be well if some of the living would profit by this lesson; and, calmly pursuing truth for its own sake, would leave their merits to the decision of the discerning, confident of the result. Their restless obtrusion of their real or supposed discoveries, their fidgety fear of being run over and forgotten, their challenges and reclamations, their attacks and replies and rejoinders, whilst they doubtless disqualify them for being sound sleepers, neither amuse, nor instruct, nor convince, but make the paths of science thorny and unpleasant, which should be full of peace and delight.

Far more agreeable is it to turn from the contemplation of these quarrels to the quiet pursuits of John Hunter, to his close consideration of the descent of the testis in the fetus, first by him accurately described; and to the commencement of his observations, and those perhaps of many others, on the hidden functions of the nervous system, by the patient tracing of the ramifications of the first pair of nerves within the nose; and to his ingenious and valuable experiments to determine the disputed question of venous absorption. Thus engaged, and after ten years of application, he began to turn his attention to the often-needed illustration to be derived from comparative anatomy; but the proud and extensive products of this direction of his mind were yet for a time withheld from him and from science by an attack of inflammation of the lungs (in 1759), "which left behind it symptoms which threatened to end in consumption." Being advised to seek a warmer climate, he obtained the appointment of staff-surgeon in the army, and accompanying the armament, under General Hodgson and Commodore Keppel, to lay siege to Belleisle, in 1761, "was at once furnished with ample opportunities for practice in the treatment of gun-shot wounds." In the following year he was with the army in Spain; and he did not return to London until 1763. During this part of his life, as at all other times, he was continually observing and reflecting. He instituted experiments on lizards and

snakes, "to ascertain whether digestion continues during their torpid state;" and entered on some enquiries concerning the faculty of hearing in fishes. In whatever circumstances he was placed, he was still the interrogator of nature, and she answered him, as she answers all who question her with humility and zeal, eloquently well.

Returning to London, and now five and thirty years of age, John Hunter had to begin the world. The situation he formerly held with his brother had been filled up by Hewson, and his only fortune was his half-pay. He lived privately and economically, waited long for practice, and devoted much of his time, and much of his slender pecuniary means, to the pursuit of anatomical and physiological science. His manners were not such as powerfully to recommend him, and it was many years before he wrought his arduous way to a place beside the most illustrious surgeons of the time. He seems to have been ignorant of, or to have despised those "minor tactics," as his biographer terms them, which often concur largely to what is called getting on in the world.

"But after all, perhaps, the principal reason why Hunter was so long in obtaining a large share of practice was, that he looked not, as most men do, to the acquisition of fortune as the end for which he was labouring; but, on the contrary, considered wealth only as a means by which he might advance the far more important objects he had in view. His powerful mind was unceasingly stimulated by an ardent desire to forward the acquisition of those branches of knowledge which to him appeared best fitted to promote the improvement of his profession; to this object was devoted every hour that he could spare from his daily avocations, or snatch from the time allotted by others to sleep; and to promote this end he was always ready to sacrifice the claims of worldly prudence and self-interest. To witness an interesting or extraordinary case he would take any trouble, or go almost any distance, without a chance of pecuniary recompense; but to the daily routine of practice he always returned unwillingly, and even when he had acquired a lucrative and extensive business, he valued it only as affording him the means of pursuing his favorite studies. This feeling he would often express to his friend Mr. Lynn, when called to see a patient, by saying, as he unwillingly laid by his dissecting instrument, "Well, Lynn, I must go and earn this d—d guinea, or I shall be sure to want it tomorrow." (P. 27.)

It may perhaps console some living lecturers to know, that, at this time, John Hunter's lectures on anatomy and operative surgery were delivered to an audience never exceeding twenty. But for this kind of disappointment, he enjoyed abundant consolation in the continual delight he experienced from the prosecution of comparative anatomy. The tigers in the tower were more interesting to him than the fees of pupils. Whenever he was master of ten guineas, he added to his museum. He allowed the proprietors of menageries a life-interest in rare animals, and was delighted to receive and examine the carcasses when the animals died. In this devotion of himself to one great object, regardless of ordinary obstacles, we recognize the characteristic of a truly great man; and it adds to his merit, that even in the widest range of his enquiries he had ever a regard to illustrating the phenomena of disease as well as of health, thus making philosophy the handmaid of medicine and surgery.

"He clearly saw, that in order to obtain just conceptions of the nature of those aberrations from healthy actions which constitute disease, it was necessary first to understand well the healthy actions themselves; and these required to be studied, not in man alone, but throughout the whole animal series, and even to receive further elucidation by comparison with the functions of vegetable life. It was no less an under-

taking, then, than the study of the phenomena of life, in health and disease, throughout the whole range of organized beings, in which Hunter proposed to engage; an undertaking which required a genius like his to plan, and from the difficulties of executing which, any mind less energetic, less industrious, and less devoted to science than his own, would have shrunk.

"In pursuing these researches, he strove not, like many of his more learned but less philosophic predecessors, to unravel the mysteries of nature by taking up some principle *a priori*, and seeking for facts to support his theory. On the contrary, he followed, in the strictest manner, the inductive method laid down by the great father of modern philosophy, as the only sure though arduous road to knowledge. He aimed not at discovering the essence of life, satisfied that this was beyond the province of philosophical research; but he sought to know how the various organs are constructed, and how they act in accomplishing those various processes by which the presence of this principle is manifested. Nor was he content to acquire his information at second hand. Instead, therefore, of referring to the discoveries detailed in books, he appealed directly to nature herself, and rested nothing upon the facts related by others, until, by the evidence of his own senses, he had ascertained their truth." (P. 31.)

In 1768, Hunter was elected surgeon to St. George's Hospital, and was enabled by this circumstance to take private pupils, among whom were the celebrated Jenner, the late deservedly esteemed Mr. Guy, of Chichester, Dr. Physick, of Philadelphia; and lastly, and as the sequel proved, least worthy, Sir Everard Home. In 1771, he published the first part of his *Treatise on the Teeth*. In the same year, he married the sister of Sir Everard Home, and, although his wife's gay parties sometimes mightily discomposed him, the marriage seems to have been on the whole a very happy one. In 1772, he presented to the Royal Society, of which he had been already five years a member, a memoir on the digestion of the stomach after death, by the gastric fluid contained in it; a fact which he was the first to point out, and which the researches and experiments of Dr. Carswell have fully established.

He had now filled all the principal rooms of his house with preparations. Three or four hours before breakfast, and as much time during each day as could be spared from practice, he devoted to his museum. His practice increased also, but yet before 1774, when he was forty-six years of age, it did not amount to a thousand a year. A singular account is given of an attack of illness which he had about this time, consisting of spasm, in the region of the pylorus, attended with a cessation of the heart's action for three-quarters of an hour. We believe, although the memoir before us does not say so, that his attention was first drawn to his pulse by remarking the extraordinary paleness of his face in the glass. His sensations and voluntary actions were during this time unimpaired, and "he continued to respire by a voluntary effort, with a view of keeping himself alive." It is presumable that the cessation of the heart's action was not complete, and that careful auscultation would have detected feeble contractions.

In this year (1775), Hunter first delivered a course of lectures exclusively on surgery. His dislike to delivering public discourses was extreme; and whenever he gave an introductory lecture, he previously took laudanum. Although he was never a popular lecturer, and had no pretensions to elegance of diction, there must have been something striking in the originality and force of his observations. Yet it sounds oddly to be told, as he was in the habit of expressing himself, that a ball had "gone into a man's belly and hit his guts such a d—d thump, that they *artified*."

We shall not attempt to enumerate Hunter's writings, or his contributions to the Transactions of the Royal Society, which were numerous and valuable. The Chronological list contains fifty-five separate memoirs, in various publications. On every subject his ardour of enquiry is conspicuous, and it is the ardour not of an anatomist and physiologist merely, but of a naturalist in the widest sense of the term. Although greatly inferior to Cuvier in accomplishments, he was, like that great man, distinguished by the most laborious application of time to similar subjects; and, if at that time any public encouragement had been given to such pursuits, he would doubtless have founded a magnificent national establishment of Natural History in England. For this, however, he prepared the way; although only by the devotion of his life to the subject, and not a less sum altogether than 70,000*l.*; an enormous and memorable sacrifice for a man whose only estate was his industry.

He was generally in his dissecting-room before six in the morning, and his evening studies were often prolonged an hour or two after midnight. His days were necessarily devoted to seeing patients, in the course of which duty his punctuality was exemplary.

— "he kept a regular entry of his engagements in a book at home, and carried an exact copy of this in his waistcoat pocket, so that by a reference to the book he could always be found at any hour of the day, in the event of his being wanted. Any unnecessary discomposure of these engagements greatly annoyed him, and caused him to give vent to his feelings in no measured terms. The late Mr. Cline once excited his ire by an offence of this kind. He had engaged Hunter to meet him in consultation on a case in the afternoon, but in the course of his morning rounds saw another patient, respecting whom he wished to take Hunter's opinion, and accordingly, without giving him previous notice, appointed to call with him after the former engagement was ended. When the first visit was over, Cline mentioned the second appointment, on learning of which Hunter got into a towering passion, and asserted that Cline had acted in the most unjustifiable manner in thus deranging the whole of his arrangements for the afternoon. Cline, who was of a very placid temper, was amazed to see such a storm excited by so trifling a cause, and said what he could to appease it. In this he succeeded, and Hunter, soon recovering himself, turned to him, and in a very lowered tone said, "Come along, then, let us go and see our patient." Hunter was equally strict in enforcing punctuality on his household: he dined at four, then the fashionable hour, and gave strict orders that dinner should be ready punctually whether he was at home or not. He was a very moderate eater, and set little value on the indulgences of the palate. During many of the latter years of his life he drank no wine, and therefore seldom remained long at table after dinner, except when he had company; but then, though he abstained himself, he was not willing to allow his friends to follow his example.

"After dinner he was accustomed to sleep for about an hour, and his evenings were spent either in preparing or delivering lectures, in dictating to an amanuensis the records of particular cases, of which he kept a regular entry, or in a similar manner committing to paper the substance of any work on which he chanced to be engaged." * * * "At twelve the family went to bed, and the butler, before retiring to rest, used to bring in a fresh argand lamp, by the light of which Hunter continued his labours until one or two in the morning, or even later in winter." (P. 52.)

With such habits, it becomes conceivable that he should have found time, amidst the distractions of practice, to form his noble museum, which we trust is at length likely to be made useful to the public. His letters to Jenner are curious for their brevity, for the anxiety they evince on every subject connected with natural history, and for the confidence they shew him to have felt in his own powers of exertion, and in those of

other men. "I thank you," he says in one of them, "for your experiment on the hedgehog; but why do you ask me a question by way of solving it? I think your solution is just; but why think? why not try the experiment? Repeat all the experiments on a hedgehog as soon as you receive this, and they will give you the solution. Try the heat: cut off a leg at the same place; cut off the head, and expose the heart; and let me know the result of the whole. Ever yours, J. Hunter." Indeed, in some of his letters he gives Jenner at least a month's task, and though not literary, he always employs a style of his own, and which plainly derives its character from that of his thoughts. Sometimes he mixes his topics oddly enough. "I have but one order to send you," he says on another occasion, "which is to send every thing you can get, either animal, vegetable, or mineral, and the compound of the two, either animal or vegetable, mineralized. I would have you do nothing with the boy but dress him superficially: these funguses" (cerebral) "will die, and be damned to them, and drop off. Have you large trees, of different kinds, that you can make free with? Have you any eaves, where bats go at night?" &c.

When engaged in some experiments on the heat of animals and vegetables, "with a view to discover if it were possible to restore to life animals which had been frozen," he became enamoured of his subject, and speculated "on the possibility of freezing human beings, and thawing them to life two or three centuries after, a project which," Mr. Ottley says, "if he could realize, he expected would make his fortune." We may imagine with what interest he would have received the astounding fact, lately announced by Mr. Crosse, that insects fossilized in flint may be revived after a thousand years of stony torpor.

Examples of almost superhuman industry, like that exhibited by Hunter, are often held up for imitation, too little qualified by the reflection that as it surpasses the endurance of the majority of men, any attempt to imitate it is commonly followed by grievous penalties. Even Hunter's strong frame seems to have been early and seriously impaired; and, at least in some degree, in consequence of the perpetual employment and frequent excitement of his mind and feelings. To one severe attack allusion has already been made: another occurred in 1777, when, in consequence of mental disturbance, he was affected with vertigo for many days, attended with morbid acuteness of the organs of sense, and various nervous sensations. His friend Jenner was shocked by the appearance he presented after this attack, and suspected him to labour under angina pectoris, arising from some disease of the heart. In 1785, (we conjecture, for the biography is not aided by marginal dates), he suffered from a painful affection of the heart and arteries, and from spasmodic affections of the face, arms, chest and stomach, and finally "a violent spasm of the heart, which, after half an hour of agonizing pain, ended in syncope." At this time, however, he laboured under some apprehension of hydrophobia. These attacks were unfortunately induced by mental irritation, to which he was extremely prone. By the end of the year he had recovered sufficiently to plan and carry into execution "his famous operation for the cure of aneurism; that of tying the artery at a distance from the tumour, and between it and the heart, instead of laying open and emptying the sac, and then seeking for the orifices of the vessel, according to

the old operation." His biographer endeavours, with much candour and fairness, to determine the precise amount of credit due to Anel and Desault in connexion with this operation.

As we propose giving a distinct account of the principal works of John Hunter, we purposely pass over several notices of his publications interspersed with the biographical memoir, dwelling chiefly on the particulars of his life, which, like that of most men of science and great application, was not very eventful. We find him ever pursuing the same industrious course, ever displaying the same desire to become the possessor, almost at any price, of whatever could illustrate the animal economy, or, indeed, any of the kingdoms of nature. For this purpose he toiled, for this he built, for this he expended all the money he could command; in short, for this he lived. He let none of his friends rest idle or unsolicited who were capable of helping him or adding to his stores; he sent out agents to the north seas to procure information concerning whales; and he made it the business of one of his men to watch the declining health of the Irish giant O'Brien, that his bones might adorn his museum. Poor O'Brien did not participate in this zeal for the illustration of osteology, and died assured that he should be enclosed in a leaden coffin and sunk in the sea. Hunter's man, however, bribed the watchers of the corpse with drink, until a bargain was made to surrender up the body to Hunter, at the enormous price of five hundred pounds.

Those who possess, or have seen and admired Sharp's engraving of John Hunter, will be interested to learn that John seems to have submitted to the great privilege of being painted by Sir Joshua Reynolds with almost as bad a grace as he would have consented to construct bad Latin verses at Oxford. He proved a troublesome sitter; but at length, probably tired of the operation, fell into a train of thought in the attitude in which the portrait represents him, an attitude so preferable, it would appear, to that in which he was originally intended to be exhibited, that Sir Joshua turned his half painted canvass upside down, and made a fresh sketch, of which the head was between the legs of the former.

When the biographer of Hunter has advanced as far as the sixtieth year of this indefatigable man, we are not surprised that he is enabled to represent him as one of the first anatomists, physiologists, and surgeons of the day. Every page of the life still contains testimony of his unabated zeal for science, and of his encouragement of it in younger men. He was continually enriching his profession with the fruits of his research and meditation, and in the midst of innumerable engagements of the study and of active life, was carefully preparing the great work on Inflammation and Gun-shot wounds; which, notwithstanding occasional obscurities of style, will ever rank among the classical productions of medicine, and meditating a still larger work on his museum. His character had naturally become at this period of his life more broadly impressed with peculiarities, which were, however, "of a mingled yarn." His generosity as to money matters was remarkable. His sentiments with respect to the concealment of the nature of successful medicines was a less pleasing trait. Although continually engaged in the contemplation of the works of the Creator, his mind never seems to have been raised beyond the visible phenomena of life, and his biographer would have done wisely to omit his scoffing assent to become godfather to one of Jenner's

children. To the calmness of a philosopher he had no pretensions; yet he bore detraction patiently. The tender emotions were unknown to him, but he felt for his friends in their misfortunes, and was prompt to relieve them. It is as a man of science that Hunter is entitled to admiration, and in this respect his claims are of the highest kind. Of all the privileges of superior minds none is so noble, none so truly worthy of desire, as that of influencing the minds of others for many generations; and this influence we believe will be attached to the name of Hunter. There are few subjects in physiology, especially, which did not at some time or other employ his thoughts; and wherever in his writings he fails to elucidate, his strong understanding has yet thrown a ray by which his followers may be lighted to further discovery.

We live in days when science is in favour, but it requires no great effort of imagination to conceive how Hunter's habitual employments would be regarded and represented, by the mere *practical* men of his day, (as those of the most moderate acquisitions generally term themselves,) as inconsistent with the qualifications required in a good surgeon. In a knowledge of the principles of surgery, it will be conceded that few were his equals; and if he did not excel in the performance of operations he never failed, aided by his sound anatomical science, to bring any operation which he undertook to a perfect conclusion. But there are many narrow-minded men in all professions, who regard books and study with a kind of detestation, and who console themselves for conscious deficiencies by boasting of their practical cleverness. In the mere manual parts of surgery they may possess something of this kind; but in its higher departments, and in the practice of medicine, such men are as ignorant at the bed side as they are in the study. Their best friend is the constant uncertainty of physic, which takes away confidence almost in proportion to men's powers of reflection, and leaves the illiterate prescriber in a world of imaginary triumphs. With some minds of this stamp John Hunter seems to have been associated at St. George's Hospital; men who hated him for his attainments, considered that surgery could be no further advanced, and proclaimed him an enthusiast and an innovator. One of them "did not choose to hazard his reputation in giving lectures;" another "did not see where the art could be improved;" and all united in opposing his plans for making the hospital more useful as a place of education. The governors of the hospital sided with the ignorant majority, and left Hunter's suggestions to be adopted by another and a wiser generation. In contests of this kind, the advocates of illiberal measures have generally for a long time the advantage, for they defend their course by narrow views, which the meanest minds readily comprehend and sympathise with. The following passage details the principal manœuvre employed against Hunter, and its tragic result.

"A Committee was subsequently appointed to draw up a code of rules for regulating the admission and instruction of pupils; and a set of proposals was submitted to them by Mr. Hunter's colleagues, which was agreed to without his having been even consulted on the occasion! Many of the regulations adopted continue in force to the present day; others, and especially those relating to the better instruction of the pupils, soon fell into disuse; and some seem to have been especially directed against Mr. Hunter. Amongst these latter, was one which determined that for the future, no person should be admitted as a student of the hospital without bringing certificates that he had been educated to the profession; a regulation which was probably designed

to exclude Mr. Hunter's countrymen, who sometimes came up to town recommended to him, and entered as his pupils at the hospital, without having had any previous medical instruction. Nor was this clause long in taking effect; for in the autumn two young men, who had come up to town ignorant of this new regulation, applied to Hunter to be admitted under him at the hospital. He informed them of the law which had been passed, but undertook to press for their admission at the next Board-day, and directed them to furnish him with a statement of their case in writing. On the 16th of October the Board was to meet, and Hunter prepared to fulfil his promise though he was so well aware of the risk he incurred in undertaking a task which he felt would agitate him, that in mentioning the circumstance to a friend who called on him in the morning, he expressed his apprehension lest some unpleasant dispute might occur, and his conviction that if it did it would certainly prove fatal to him. At his accustomed hour he left his house to commence his morning rounds, and by accident forgot to take with him his list of appointments; he had left the house but a few moments when it was discovered, and Mr. Clift, who was then residing in his house, hastened with it to York Street, St. James's, the first place on the list, where he found the carriage waiting. Hunter soon made his appearance, took the list, and in an animated tone called to the coachman to drive to St. George's. Arrived at the hospital, he found the Board already assembled, and entering the room, presented the memorial of the young men, and proceeded to urge the propriety of their being admitted. In the course of his remarks, he made some observation which one of his colleagues thought it necessary instantly and flatly to contradict. Hunter immediately ceased speaking, retired from the table, and struggling to suppress the tumult of his passion, hurried into the adjoining room, which he had scarcely reached when, with a deep groan, he fell lifeless into the arms of Dr. Robertson, one of the physicians of the hospital, who chanced to be present. Dr. Baillie had immediately followed him from the Board-room, and Mr. Home, who was in the house, was also summoned to his assistance. Various attempts were made for upwards of an hour to restore animation, under the hope that the attack might prove to be a fainting fit, such as he had before experienced, but in vain; life had fled; and all their efforts proving useless, his body was placed in a sedan chair and conveyed to Leicester-square, followed by his now vacant carriage." (P. 130.)

Thus suddenly closed the life of this remarkable man, in his sixty-fifth year. Recollecting the circumstances of Mr. Hunter's previous health, the appearances found in the heart after death possess great interest. The pericardium was much thickened: the heart was small, the result of wasting and not of contraction of its fibres; two opaque white spots were found on the left auricle and ventricle: the muscular structure of the heart was pale and loose in its texture: the coronary arteries were with difficulty divisible by the knife. The mitral valves were ossified. There was some dilatation of the aorta, its valves were somewhat rigid, and the inner surface of the artery was studded with opaque and elevated white spots.

In the summing up of Mr. Hunter's character, Mr. Ottley exhibits equal judgment and candour; we do not, however, think it necessary to quote more from this very interesting memoir, which, with the valuable works now first collected, and carefully edited, with the addition of useful notes, will we trust find its way into every public medical library, and into many private collections of medical literature.

It is painful to look back on the difficulties which both the Hunters experienced, in rousing the feelings of the English public to any demonstration of zeal for science. William Hunter offered at one time to lay out 7000*l.* in the foundation of a national museum, but could get no countenance from government; and John's unrivalled collection, after

his death, and the usual miserable process of bargaining, was purchased for less than half its value, and placed where it was long of little advantage to the profession or the public. The warlike ministry of that season of national insanity, were astonished at a request to encourage science. "What!" exclaimed Mr. Pitt, buy preparations! why, I have not money enough to purchase gunpowder." No encouragement would be afforded to the sciences which preserve life, by those whose thoughts were chiefly turned to the most compendious methods of killing men. We have no reason to be proud when we recollect that the French government, though equally steeped in human blood, was at that time fostering science with the utmost care, and rewarding its professors with unexampled liberality.

The great monument of John Hunter is the Hunterian Museum; far more honorable to him than "storied urn or animated bust." Part of its utility must long, we fear, be withheld by the want of those references which were burnt by Sir Everard Home. It is needless, now, to add to the execrations which are uttered over Sir Everard's memory. Meanness, ingratitude, and dishonesty could go no further than he carried them. But we think he is yet too highly estimated as a man of science and we know that in conversation at meetings professedly scientific, his sentiments and language were so gross, as to justify a belief that his attainments were as limited as his mind was impure. We allude to this circumstance, not to add to the deserved obloquy which covers his character, but to warn students of youthful age against the worship of such unclean deities, whose temporary influence is often great, but never salutary. But Sir Everard Home could only destroy the manuscripts; the master to whom he was so deeply indebted. The preparations and specimens yet remain, and for the most part speak for themselves. Hunter's truly great design is stated to have been to illustrate all the phenomena of life in all organized beings. As he proceeded, he became interested in the fossil remains of forms of life no longer existing. The illustration of diseased actions was another great object; and this was effected by every aid that industry or art could employ. In time the collection grew so immense that he despaired of living to finish its arrangement, and to write a fair exposition of it. Never was there, therefore, presented to a surviving friend and pupil so grateful and so noble a task as that of completing a work, to leave which unfinished was one of Hunter's chief regrets when he found his health declining. Like all other men of comprehensive minds, he found the great scene of nature continually opening before him, enlarging, and exhaustless; but human life is short, and the longest preparation is generally made for no more effective end than to leave the greatest designs incomplete. A second period of sixty years would have been wanting to Hunter, as to Cuvier to arrange, to survey, to reflect upon and interpret, the materials gathered together in the space of life allotted to one man.

Other labourers remain, and the collection, improved, and exhibited to advantage, and explained by able followers, is yet open to the student destined, we trust, to stimulate many minds to fresh acquisitions. The medical student, especially, cannot be too strongly urged to visit and revisit the museum. It should be seen again and again: whole books

should be read in it, with its preparations for illustration. Days, weeks, and months should be spent in it. The Council of the College of Surgeons will almost compensate us for thirty years of curatorial sleep, if they will carry into full effect their supposed design of publishing descriptive catalogues of every part of the collection.

ART. VI.

1. *The Proofs of Infanticide, considered*. By WILLIAM CUMMIN, M.D.; Member of the Royal College of Physicians, &c.; and Lecturer on Forensic Medicine at the Aldersgate School of Medicine.—London, 1836. 12mo. pp. 95.
2. *Beiträge zur Lehre von dem Thatbestande des Kindermordes überhaupt, und den ungewissen Todesarten neugeborner Kinder insbesondere*. Von IGNAZ. SCHWÖRER, Doctor der Medicin, ordentl. öffentl. Professor der Geburtskunde an der Universität Freiburg, &c.—Freiburg, 1836.
- Contributions to the Doctrine of Infanticide, more especially in Relation to the doubtful Causes of Death in New-Born Children*. By IGNATIUS SCHWÖRER, M.D., Professor of Midwifery in the University of Freiburg, &c.—Freiburg, 1836. 8vo. pp. 45.
3. *Researches in Medicine and Medical Jurisprudence*. By JOHN B. BECK, M.D., Professor of Materia Medica and Medical Jurisprudence in the College of Physicians and Surgeons of New York, &c.—New York, 1835. 8vo. pp. 256.

THERE are perhaps few among the present race of practitioners who are not acquainted with the opinions of Dr. William Hunter on the subject of infanticide. The influence of his name sufficed, for a very considerable period, to retard the progress of enquiry relative to one of the most important and embarrassing of the medico-legal questions which present themselves for investigation in cases of child-murder. The tract by which the opinions of Dr. Hunter were made known to the profession, was not published until some time after his death; and we are inclined to agree with Dr. Cummin, who has very judiciously reprinted it, with comments and observations, that, had the author lived to superintend its publication, it would have undergone some material alterations before being submitted to the public. As it is, "Where shall we find," observes Dr. Cummin (p. 27), "a more splendid defence of the sex, or one more humanely indulgent to those unfortunate females who happen to lie under the imputation of the murder of their offspring?" No one can dispute the eloquence or the ingenuity of Dr. Hunter; but it is always to be regretted when these excellent qualities in a scientific writer are made to serve a bad purpose, and one which he never could have contemplated,—namely, that of inventing a specious defence for the really guilty. That this has been the case, and that the strongest prejudices have been exerted against a very useful, and, when properly conducted, a very safe method of determining the all important question, whether the child which is the subject of enquiry has lived to breathe, will be apparent, on

reference to any volume of our Criminal Law Reports. "The judges," remarks Dr. Cummin, in his preface, "quote it (Dr. Hunter's tract,) with implicit faith in its perfection: the bar study it, and cross-examine the crown-witnesses on the difficulties which it suggests; and medical men, probably, will not find it safe to venture into the witness-box without being familiarly acquainted with its contents." This is no exaggerated picture: we could at this moment refer to several excellent works on our criminal law, which have but recently appeared, in which Dr. Hunter's opinions are exclusively adopted, and the whole subject is disposed of as if nothing had been done since the time of that distinguished writer. How necessary is it, then, that a medical practitioner should be prepared with a knowledge of doctrines and opinions to which so much importance is attached by our law-authorities!

Dr. Cummin has divided his treatise into three parts. In the first, we have a reprint of Dr. Hunter's tract "On the Uncertainty of the Signs of Murder in the case of Bastard-children:" in the second, we have comments upon this tract; and in the third, we have a compendious summary of our author's own views on the subject of infanticide, including the most important facts which have of late years been accumulating in this interesting department of Forensic Medicine.

In his comments upon Dr. Hunter's opinions, Dr. Cummin has very properly confined himself to a notice of those which are the most objectionable and are most likely to mislead non-professional readers. In giving to Dr. Hunter credit for humanity and ingenuity, he does not hesitate to expose boldly the rhetorical artifices, inconclusive reasonings, and unapt illustrations with which the tract abounds. Thus, (p. 28,) Dr. Hunter complains of too much being in general left to the decision of medical practitioners; but, "instead of giving any instance of mistakes committed by medical men," he immediately quotes an example of gross ignorance on the part of a *jury*, who were only prevented from falling into a serious error by the confidence which they put in a cautiously expressed *medical* opinion! The vagueness of Dr. Hunter's language is often so great, that it is difficult to arrive at his meaning. Thus, he speaks of judging "of the death of a child, by attending to the force of cohesion between the skin and scarf-skin," (p. 30,) leaving it uncertain whether evidence as to the *period* or as to the *manner* of death is to be thereby obtained. We must refer our readers to Dr. Cummin's judicious strictures on this passage.

Undoubtedly, the most important part of Hunter's tract, and one which required the closest examination by a commentator, is that which refers to the objections brought by him against the employment of the hydrostatic test, as a means for determining whether a child has lived to breathe. Dr. Cummin has here selected for remark a question proposed by Hunter, which gives him an opportunity of entering fully into the exceptions taken by this writer to the hydrostatic test: but, as our author properly observes, "these exceptions are little more than hinted at or merely stated, inasmuch as there is nothing suggested by which their force may be duly estimated," Dr. Hunter's question is, "How far may we conclude that the child was born alive and *probably murdered by its mother, if the lungs swim in water?*" It would seem from the form in which this question is put, that, in Dr. Hunter's time, the swimming of the lungs in

water was received as evidence of the *murder* of the child: but the facts are most unfairly stated. We are well aware that the buoyancy of the lungs was then regarded by many as an infallible sign of a child having lived; and that but little attention was paid to the other causes besides respiration, which are well known to render the foetal lungs buoyant: but we do not think it would be easy to produce a single case in which "the swimming of the lungs" was made *evidence of murder* against the mother. All that the practitioner attempted to determine by its application was, whether the child had lived to breathe, leaving the question of murder to be settled by other evidence. It is very true that, had the statute of James I., regarding child-murder,* been rigorously enforced, many females must have been found guilty of the crime, even when the medical evidence proved no more than that the child had breathed; yet it is well known that every fiction which the law could devise to do away with the alleged concealment of pregnancy and delivery, was admitted in favour of the prisoners. Besides, even had it been otherwise, the most proper course to have pursued would have been to show the inhumanity and cruelty of a statute which called for proofs of innocence not only unnecessary, but such as the accused party could seldom be in a condition to afford. The mischievous effects of the law, however, were not noticed: an attempt was made to remedy the evils to which it gave rise, by rendering medical evidence on such investigations so uncertain, through specious objections, as to lead in general to its total rejection in a court of justice.

One of the exceptions taken by Dr. Hunter relates to the generation of air by putrefaction within the pulmonary tissue; he also proposes a method for determining whether the buoyancy be due to this cause or not. His method is "simple, but not as practical as it might be;" and our author then enters into a very concise, and at the same time a very clear, account of the means by which a medical witness may best satisfy himself of the nature of the cause to which the buoyancy is due. The same remark applies to the comments on the objection founded on the possibility of the lungs having been artificially inflated with air in the attempt to resuscitate a child.

We shall make no observation on the various "facts" adduced by Dr. Hunter, in which he attempts to account for the death of the child from natural causes. His inferences are wholly inapplicable to the present state of our law. The tendency is indeed now rather the other way; for there is not an instance in which a woman is convicted of the crime of child-murder, unless her guilt be obviously and clearly made out. The accidental and natural causes of death are now well known; and females often escape, although there may be the strongest presumptive evidence against them.

We think we cannot do better than sum up these remarks on Dr. Hunter's tract in our author's own words; and we trust that they will serve as a solemn warning to those who still prefer sheltering them-

* Stat. 21. Jac. 1. c. xxvii. By this statute, a woman, concealing the birth of her bastard child, was considered as having murdered it, unless she could prove that it was born dead. This statute was repealed about twenty years after Dr. Hunter's death, by the 43 Geo. III. c. lviij.

selves under the authority of his, in other respects, deservedly great name, to the rigorous investigation of facts and opinions.

"It is no doubt the duty of all to save, when in their power, the innocent from unmerited ignominy and punishment. But there is also another duty which Dr. Hunter on the present occasion seems to have wholly lost sight of; namely, that of bringing the guilty to deserved condemnation, by stripping them of the assumed garb of innocence, which would otherwise be instrumental in their escaping justice. But what, after all, has Dr. Hunter done? His avowed object was to impress the public mind to rescue, if possible, some unhappy and innocent women. He has accordingly shown in his paper, that a woman *may* be innocent, although the presumption of her guilt amount to a high degree of probability. He has ingeniously proved that most of the circumstances connected with the *floating* of the lungs may be accounted for without supposing the child to have been murderously treated. He has dexterously stated, in his own peculiar way, and with all the weight attaching to his high reputation, every objection he was acquainted with *against* the hydrostatic test. Such is the amount of public duty which our author has in the present instance discharged." (P. 44.)

Again, a little further on, he observes:

"But it is evident that his (Dr. Hunter's) resolution was deliberately formed: his purpose was to show, as strikingly as possible, the *uncertainty* of the signs of child-murder; and this he has done with all the skill and ingenuity of a special pleader. It is only to be regretted that it is so often forgotten by those who adopt his opinions how very special and one-sided is his mode of treating the subject; and, [above all, that the great name and authority which he still enjoys should have so long and so effectually screened the *demurrers* in his pleading."

In the concluding part of his treatise, Dr. Cummin has collected and arranged the facts relative to infanticide in a systematic form; and he has also supplied those deficiencies which necessarily occurred in the former part of his work, while he was confining himself to the particular line of argument followed by Dr. Hunter. The first question examined by our author relates to the establishment of the fact of the child having been born alive. The signs of maturity; the signs of a child having survived its birth, under which head we have a concise account of the successive changes that take place in the umbilical cord after birth; and, lastly, the indubitable signs of still-birth, with a description of the changes induced by uterine putrefaction, are treated in an able and practical manner.

The next question which Dr. Cummin proposes for examination is, *Has the infant respired?* The proof of respiration undoubtedly furnishes the best evidence of *life*, but not of a child having been *born alive*; for these, although frequently confounded, are two distinct questions. We attach but little importance to evidence founded on the external form of the chest. This cavity is commonly described as ample and arched in the child which has respired; while the contrary conditions are stated to be met with in children that have not performed the act of respiration. But it is not often that any difference of form is observable, when the child has perished soon after birth, notwithstanding that it may even have lived to respire *several hours*; and, therefore, evidence of this kind is not to be obtained in the majority of cases of infanticide. We should doubt whether the change in the form of the thorax would be at all appreciable in any instance in which the child had died within twenty-four hours after birth: and the reason for this must at once suggest itself in the fact

that respiration is only slowly established; and that many hours must in general elapse before the lungs can acquire their full expansion.

We pass over the evidence derivable from the colour, volume, consistence, and absolute weight of the lungs, to that which is furnished by the hydrostatic test. In the directions which are given by many experimentalists for the employment of this test, we find it frequently recommended to remove the lungs with the heart and thymus gland attached, and to place these organs together in the vessel of water. We cannot exactly see the necessity for operating with the heart and thymus in this experiment, since the buoyancy of the lungs must be afterwards separately determined; and the degree of buoyancy which the organs possess may be much more accurately ascertained, if necessary, by attaching to them a weight. The heart and thymus vary in weight, from different causes, in different children; nor does there appear to be any close connexion between their weight and that of the lungs. If the leaving of these organs attached be superfluous under complete respiration, it becomes highly objectionable when the child has but feebly respired, or when the lungs are in a putrefied state. So, again, it is recommended that the pulmonary vessels should be secured by ligatures before removing the lungs from the chest; but this, we contend, is not required, except when we wish to ascertain with accuracy the *absolute weight* of the organs. The confining of the blood within the lungs by the application of ligatures to the pulmonary vessel, must, in cases where the act of respiration has been but feebly performed, rather interfere with the results which the experimentalist has to look for. In no case, indeed, in which the hydrostatic test is employed, do we see the necessity for resorting to this proceeding.

Several objections, it is well known, have been raised against the inferences derivable from the performance of this experiment. Among these, we shall first refer to what has been termed an *emphysematous condition* of the lungs, not depending on putrefaction or on the reception of air by respiration. According to the French medical jurists, this state occurs when a child is delivered by the feet; and when, owing to narrowness of the outlet, the chest becomes forcibly compressed. The child, in such a case, may die before delivery is complete, without respiring; and its body may be examined before putrefaction has begun; yet, says Lecieux, from whom this statement is taken, the lungs will float in water. The cause of the production of air vesicles in the pulmonary tissue, under these circumstances, is thus explained: by the compression of the thorax, the lungs are contused, blood is extravasated, which undergoes an *alteration*, by which air is afterwards extricated. This condition of the foetal lungs is alleged to proceed from the same cause, as the emphysematous tumefaction, which sometimes follows a wound or contusion of the head. We have no hesitation in rejecting this explanation altogether: it is possible that air vesicles may be occasionally met with in the lungs of children when delivery has been accomplished in the manner stated; but, supposing respiration not to have been imperceptibly performed, the occurrence of which is not unlikely, we should ascribe their origin to incipient putrefaction. This process, it is well known, always takes place rapidly in parts which have suffered from contusion or violence. Indeed, the admission that the blood undergoes an *alteration* after it has become

extravasated sufficiently bears out this view of the case. But, whatever explanation we may adopt, we must remember that the mechanical compression of any of the soft organs of the foetus cannot, without ulterior putrefactive changes, give rise to an extrication of air within the parenchyma. This emphysematous condition of the lungs is then, in our view, nothing but ordinary putrefaction, supervening perhaps more rapidly in this than in other cases. We have thought it right to make these remarks, since there are enough real difficulties for a medical jurist to encounter in infanticidal investigations, without allowing others unnecessarily to embarrass him.

The distension of the foetal lungs by the artificial introduction of air has been generally mentioned as a great obstacle to any correct inference from the employment of the hydrostatic test, since the time of Dr. Hunter. This is certainly one of the most specious objections which can be offered; but there are means, easy of application, by which the difficulties arising from it may be removed. These are well stated in Dr. Cummin's treatise; and we fully agree with him in opinion when he urges that, on the occurrence of this objection, the moral evidence in the case should be closely sifted. Thus he observes:

"Such a plea on behalf of an accused mother is extremely rare, not only because in most cases it has no foundation in truth, but because, to render it probable, evidence of many collateral facts must be forthcoming. The female who would endeavour to save her child by inflating its lungs, should have given other proofs; besides of her maternal tenderness: she should not have concealed, at least from some intimate friend, the fact of her pregnancy; her delivery should not have been secret (?); she should have prepared for the birth,—the living birth—of her infant; there should be no marks of wilful violence on the body: in short, it is easy to judge from the history of any given case whether the accused *wished* the life or death of the child; and, therefore, whether it is likely she *would* (even allowing that, with sufficient strength and self-possession at such a moment, she *could*) inflate the infant's lungs." (P. 63.)

We do not coincide in opinion with our author, in considering that the fact of a child respiring during delivery is an objection to the hydrostatic test. We are well aware that this is commonly maintained; but let us consider the point. All that a medical jurist can truly derive from an application of this test is the knowledge whether respiration has or has not been performed; not when the process may have begun, nor whether the child respired *before* its entire birth or *afterwards*. A little reflection will show, that it is impossible to decide, from the mere buoyancy of the lungs in water, when respiration took place, except perhaps in those instances in which the act has been most fully and completely accomplished. Here, it is true, a *presumption* may arise that the child has breathed after birth; but these cases are the exceptions to the general rule. How, therefore, can that condition be urged as an objection to a test which is entirely beyond the limits of its application? It would be as reasonable to object to the use of reagents in the detection of a poison in the stomach, because we cannot learn from their employment whether the poison was received into the organ before or after death!

How, then, is a medical jurist to determine *when* the act of respiration was performed, whether *before* or *after* entire birth? The truth is, there is no test which will here assist him. We have already hinted above that the degree to which respiration has taken place may sometimes establish

a presumption; for it is not usual to find the lungs possessing the same intensity of colour, weight, crepitation, and buoyancy, when the child has respired and died during delivery, as when it has survived its birth. Some have imagined that the relative size of the body of the child and of the pelvis of the mother would furnish evidence as to whether respiration had been performed before birth or not: if, it is contended, the body of the child were small, and the female outlet large, it is probable that delivery would be suddenly and rapidly accomplished. Hence, should the hydrostatic test indicate that the child had respired, the examiner might, in such a case, infer that respiration had certainly taken place after birth. But, even here, the woman being usually delivered in secret, a medical opinion could only be presumptive; and, in cross-examination, the witness would be compelled to admit that, in the best-formed pelvis, and under the most favorable delivery, there might be a sudden cessation of the pains after protrusion of the head, which would give sufficient time for the performance of respiration by the child before the entire birth of its body. It is very true that, in such a case, the death of the child before delivery from *natural* causes is very improbable; but that is not the question; the witness has first to establish the fact of the child having survived its birth. So, again, an extreme degree of buoyancy in the lungs is not an infallible criterion of respiration after birth. We have seen the lungs of a child, that had respired and died in the act of birth, float with the heart and thymus gland attached, and present the usual physical appearances of lungs which had respired after birth. Now, a reliance upon the physical characters of the lungs, without a knowledge of the facts, would probably in this case have led a medical jurist to declare that the child had breathed after it was born. To take a converse instance: it will be easily understood that a child may perform the act of respiration so feebly after its birth, as that the lungs will be scarcely altered in physical character, except in relation to their buoyancy. This is a condition of which we have seen frequent examples. The lungs were exactly in the state in which they are found in children that have breathed in the passage and died before entire delivery. These instances, then, will show that a positive opinion can rarely, if ever, be expressed as to whether a child breathed while its head merely protruded from the outlet, or after its body was entirely brought into the world.

We have been led to make these remarks because we think there is no question of greater perplexity which a barrister can put to a medical witness on a trial for infanticide, than that which involves the exact period at which the child breathed, supposing the fact of respiration to have been established by the clearest evidence. This question is now the more likely to be put, since it has been held by several of our judges that *the proof of the mere act of respiration, unless it be established that that act was performed after entire birth*, is not sufficient evidence of a child having been born alive. Dr. Cummin alludes to this decision; and quotes the case of *K. V. Simpson*, at the same time remarking that "a question of this kind, if admitted in every instance, would put a stop to all judicial investigations respecting infanticide." (P. 40.) In another case, that of *R. V. Poulton*, it was also laid down as necessary to be proved that the child was *alive after the whole of its body was in the world*. By a recent decision of Judge Parke, in the case of *R. v. Enoch*, it was held that

there must be *an independent circulation* in the child before it can be accounted alive; but it is not stated what is meant by an independent circulation. Can this be considered as established before the division of the umbilical cord? If the question be answered in the affirmative, then it follows that, in the opinion of one judge, *entire birth* is not necessarily required to be proved; because the circulation in the child becomes independent of that of the mother the moment that respiration begins; and we well know that this process may commence and continue for some time before delivery is complete. Let us, however, suppose that an independent circulation, in its legal signification, is not considered to exist in the child until after its birth and *entire separation* from the mother. In this case, a medical witness will have to encounter a still greater difficulty in giving his evidence; for how is he to ascertain whether any fatal injuries, met with on the body of a child, were inflicted before or after the separation or laceration of the umbilical cord? Yet, according to this interpretation of the law, he would be required to speak to their probable infliction after the division of the cord; for, prior to this absolute separation of the child from the mother, it might be held that there was not an independent circulation in the child; and, therefore, that it had not, in law, been born alive! We shall only observe, if proof of this kind were insisted on, we do not see how any charge of infanticide could ever be sustained, except where the child was actually destroyed before eye-witnesses. Upon this singular decision, in the case of *R. v. Enoch*, it will be seen, either that it must be altogether unnecessary to prove that a child was completely born; or, on the other hand, the proof of entire birth can be of no avail, unless, conjointly with this, the witness is prepared to show that the child was wholly separated from its mother when it received the violence which caused its death. How can such conflicting opinions be reconciled with any sound administration of the criminal law!

In discussing these legal technicalities, which it is easy to perceive must have an important influence on the medical evidence required in all future cases of infanticide, we are apt to lose sight of the principles upon which criminal jurisprudence, in relation to this crime, should be based. It cannot be disputed that *a living child* may be destroyed during birth, either before or after it has respired; or it may be destroyed after birth, but before what the law might deem an independent circulation has been established in its body. The wilful destruction of a child, under any of these circumstances, must be, morally speaking, as criminal as if it had been destroyed after it was entirely born, had fully breathed, and was completely separated from its mother. The English law, however, does not recognize the destruction of a child *during birth* as a case of infanticide, not even where the clearest evidence of life,—namely, the distension of the lungs with air from respiration, is afforded. In the case of *R. v. Senior*, it was decided that, if a mortal wound were inflicted on a child during birth, and before it had breathed, it would be murder, if the child were afterwards born alive, and died from the effects of the violence. But this decision does not affect the question which we have been examining. We contend that the legal completion of the crime should not be made contingent upon the child being *born alive*; for this is equal to making the crime and punishment of an offender to depend upon the

accidental circumstance of her not having employed sufficient violence to effect her murderous purpose during birth. Besides, it is demanding evidence which must appear not only unnecessary in a moral point of view, but such as medical science can rarely be capable of affording.

In treating of the sinking of the lungs, as furnishing proof of a child being still-born, Dr. Cummin does not omit to point out the circumstances which may give rise to fallacy in the experiment. The means of diagnosis, in doubtful cases, are also very fairly described. We suspect that instances of the *healthy lungs* sinking, either "in their totality" or when divided into small pieces, are more common than our author is inclined to admit, in regard to children that have survived their birth. To form an opinion on this point, of course those cases only the history of which is known can be taken. We have lately met with an instance in which a child survived its birth many hours; but its lungs, which were healthy, had preserved all the characters of the fœtal state; they were livid, not crepitant, and had a sp. gr. of 1.046. When the organs were divided into thirty pieces, and placed in water, every piece sank equally to the bottom of the vessel. The sinking of the lungs, whether entire or divided, must not be looked upon as affording positive evidence of a child being born dead. In the case of *R. v. Brain*, Judge Park held that a child might be *born alive*, and not breathe for some time after its birth. This decision we conceive to be founded on good physiological principles, and the medical witness will perceive by it that, because the lungs of a child sink in water, he must not hastily abandon the investigation. Other circumstances may show that the child was actually alive when it sustained violence: the hydrostatic test is, indeed, at best only one of the sources of proof; and we see, by the occurrence of cases of this description, that it is one upon which the practitioner cannot always rely.

After a brief sketch of the peculiarities of the fœtus, and the changes which take place in the circulatory apparatus after birth, as furnishing corroborative evidence of extra-uterine life, Dr. Cummin enters upon the description of the causes of the death of the child. These are divided into natural and violent. It is highly important that a medical witness should be well acquainted with these; for, after having established that the child was born alive, it is equally necessary for him to show whether its death proceeded from violent or from natural causes. Further, as marks of violence may have an accidental origin, so, in order to support the charge of murder, must he be prepared to prove that the violence was criminally inflicted, and that it could not have originated from any accident to the child, either before, during, or after its birth. We must refer our readers to the work itself for an account of the means which the medical jurist now has at his command to establish these points; and a knowledge of which can alone enable him to triumph over the difficulties that legal ingenuity may endeavour to throw in his way.

We cannot take our leave of Dr. Cummin without congratulating him on the very able manner in which he has treated a subject of the first importance in medical jurisprudence.* Many questions relative to infanticide have been for a long time the opprobria of medical science; and we cannot deny that prejudice has had too wide an influence on the minds of some members of our profession to allow them to regard the sub-

* Since this was written, Dr. Cummin, we regret to say, has paid the great debt of nature. He died at the early age of thirty-seven.—ED.

ject dispassionately. We consider that medical practitioners are deeply indebted to Dr. Cummin for having furnished them with the means of rebutting the specious and ill-founded views which have been so frequently and so successfully urged as objections to the employment of the hydrostatic test. These, we regret to find, are still, on too many occasions, eagerly laid hold of by barristers for the purpose of procuring the acquittal of their clients. We trust, however, that this judicious republication of Dr. Hunter's tract, with all the facts relative to the medico-legal history of infanticide which have accumulated during the last half century, will have the effect of undeceiving those who may still adhere to views which can neither be justified nor defended. We recommend this work to all who may be engaged in medico-legal investigations; and where is the practitioner who is certain of escaping from these? The easy and popular style in which the book is written renders it also well adapted to the barrister.

Dr. SCHWÖRER's pamphlet, it appears, is the substance of an inaugural lecture which the author delivered about two years previously, before the Academy of Freiburg. His chief object is to show that natural causes may sometimes produce marks of great violence on the body of the child during parturition. Having stated the points to which the medical jurist has to confine his attention in a case of suspected child-murder, he warns him against relying too confidently upon the dicta of those who deservedly hold a high reputation in the profession. As an instance of the fallacies into which a practitioner may thus be led, he quotes a statement of Haller's, in which this writer remarks that "fractures of the cranium in new-born children furnish evidence of external violence; and," observes our author, "not content with this affirmative declaration, he immediately afterwards asserts that such fractures never occur from natural causes." (P. 7.) Dr. Schwörer devotes but a slight space to the consideration of the proofs relative to the life of the child after birth: indeed, this does not appear to have been the object which he had in view. He enters, as it seems to us, rather more fully than he need have done into the psychological condition of women during delivery, and the possibility of the occurrence of a sudden attack of puerperal mania at this period, under which a female may become the unconscious murderess of her offspring. He brings forward numerous ingenious explanations of circumstances, which would, in general, be considered to furnish strong presumptive evidence against a mother on these occasions. His language bears the stamp of candour and philanthropy; for, while he loses no opportunity of endeavouring to reconcile the most adverse facts with the assumed innocence of a female, he does not withhold or conceal those points of evidence for which the medical witness should look, in order to establish the charge against her.

The design of the author being to prove that fractures of the foetal cranium may occur *spontaneously during natural delivery*, a point which is certainly of great importance to be established, while it is of somewhat rare occurrence, we shall devote a short space to his remarks on the subject. Having first quoted the opinions of some old writers on the possibility of such accidents occurring during births, independently of external violence, he refers to actual cases, reported by Schmitt, Meissner, Jörg, and others; which we omit, in order to give a brief account of that which occurred to Dr. Schwörer himself.

A female, aged thirty-two, of delicate habit, was delivered on the 14th June, 1831, in the presence of the Professor and several of his pupils, of a male child. The labour was difficult, and lasted twenty-seven hours. This woman had gone eight days beyond the time at which, by calculation, she ought to have been delivered. During delivery, she became twice unconscious. The head of the child advanced slowly, in consequence of the resistance which it met with at the outlet. After it had descended, the pains suddenly ceased for an hour. Instruments were sent for; but, in the mean time, the child was suddenly expelled, and the Professor received it in his hands, so that it did not come in contact with any hard surface. The child did not breathe, but the pulsation of the heart could be felt, and there were present other satisfactory signs of life: it was found, however, impossible to resuscitate it. The body of the child was afterwards submitted to a close inspection. It was of the male sex, and perfectly mature. We shall confine our observations to the appearances presented by an inspection of the head. The skin over the right parietal bone was livid and swollen; and, on making an incision into it, a quantity of dark-coloured blood was found extravasated beneath. The cranium was examined more closely, and it was then found that the right parietal bone was fractured, or rather fissured, in two places. The first fissure was about an inch long, having a direction from the lambdoidal suture, about the middle of the posterior edge of the parietal bone, towards the centre of that bone. The second fissure was smaller; it commenced in the sagittal suture, near the upper and posterior angle of the parietal bone, passing downwards and outwards at nearly right angles to the suture.* Blood was found extravasated between the dura mater and tunica arachnoides, in situations corresponding to these fissures.*

Dr. Schwörer seems to think that, had the history of this case remained unknown, and had a medico-legal opinion been required respecting the death of the child, the decision would most probably have been, that the child had survived its birth, notwithstanding the want of evidence of respiration; and further, that its death was owing to violent injury to the head. The unconsciousness under which the female laboured during delivery would have prevented her from giving any satisfactory account of the origin of the violence; and thus he leaves us to presume that she would have been condemned as the murderess.

We consider this case deserving of the attention of medical jurists of all countries. Facts of this description are always worthy of being recorded, as they serve to create caution in the expression of an opinion relative to the origin of marks of violence on new-born children. But we, for our parts, should not anticipate the evil consequences predicted by Dr. Schwörer on the occurrence of such a case. In this country, at least, the investigation, supposing nothing relative to the birth had been known, would not certainly have gone beyond a coroner's inquest. The child would have been pronounced still-born: we doubt whether any practitioner would, upon the evidence, have given an opinion that it had survived its birth. In our view, the death of this child was as much to be ascribed to the violence which the head sustained, as to the protraction of the labour. The origin of the violence is another question. It is here

* A striking example of a similar injury is recorded in our present Number, by Dr. Michaelis. (See Foreign Selections, sect. MIDWIFERY.)

proved to have taken place from spontaneous causes; but, at the same time, from the inspection it appears to have been of so slight a nature as scarcely to justify the grave fears entertained by the reporter. In general, medical witnesses make full allowance for the occurrence of accidental injuries to the child during delivery; and this certainly does not appear to us to have been a case in which this rule would have been departed from.

Dr. Schwörer's essay is well written; it carries on it the impress of a humane and reflecting mind. We could have wished that he had treated his subject in less figurative language, and that he had avoided quoting poetry.

Dr. JOHN BECK's "*Researches*" consists of essays on various subjects; but nearly two-thirds of the volume are devoted to an examination of the questions connected with infanticide, under which head our author includes *criminal abortion*, as well as *child-murder*. We shall commence with a review of his opinions relative to abortion.

We must, in the outset, warn our readers that a very different interpretation is put on the meaning of the words Criminal Abortion in America and England. The laws of these countries differ materially from each other in the degree of medical proof which they require to establish the crime. Thus, in the State of New York, the higher offence is deemed complete only when the death of the child or the mother follows the attempt: hence Dr. Beck defines the crime,—the *murder of the fœtus in utero*; and the American medical jurist must be prepared to show that the life of the child or the mother was really destroyed by the means used. In England, the death of either is not required to be proved; if a fatal result follow, it can constitute no part of the evidence against a prisoner on a trial for abortion, although it may give rise to a subsequent charge of murder.

The author appears to us to give himself much unnecessary trouble to show that the opinions of the ancients respecting the animation of the fœtus are erroneous. Every modern physiologist now knows the exact value which is to be attached to these antiquated views. The *signs of abortion*, both in the living and dead subject, are very well described; but we think Dr. Beck has inadvertently fallen into an error respecting the nature of the medical evidence required on these occasions. Thus in speaking of uterine hydatids, as liable to give rise to ambiguity in a diagnosis, he says: "If hydatids are always the result of a degenerated conception, then the fact of impregnation is conceded; and this, after all, is the great point to be established in these cases." (P. 42.) Again, in speaking of moles, under the same circumstances, we find him asserting, that "If the mole be the product of a real conception, the great object of the investigation is at once conceded." (P. 43.)

Now, admitting that hydatids and moles are never met with in the uterus, except when there has been previous sexual intercourse, a point which yet remains to be proved, at least with respect to hydatids, we cannot assent to Dr. Beck's sweeping statement, that "the great object of the investigation is at once conceded." In a case of criminal abortion, the medical evidence must be directed to the proof of actual pregnancy, or of delivery, if it have followed: evidence of previous intercourse is neither admitted nor required. The real question is, whether a woman

was with child or not at the time of the attempt; not whether she had previously exposed herself to the chance of impregnation. Let us imagine then, that, in a particular case, a mole or hydatids had been expelled from the uterus, and that the woman was not really pregnant, the charge of criminal abortion could not be sustained; since the most material proof, namely, the fact of her being *with child*, would be wanting.

The section on the criminal means for "destroying the *fœtus*" (procuring abortion,) appears to us unnecessarily long. In speaking of the *secale cornutum*, the author mentions a case which occurred to him where a woman took three drachms of this substance for the purpose of producing abortion, but without any effect. Dr. Beck does not seem to be aware of the difference in the strength of this drug which Kluge of Berlin has shown to exist in it, according as it is collected before or after harvest.

A very considerable space is devoted to the subject of infanticide, or child-murder; but we cannot compliment the author on the manner in which he has treated it. He has allowed himself to be swayed too much by the opinions of others, and he seems throughout to have trusted too little to his own means of observation. In consequence of this, we meet with several errors which may have the effect of bewildering or of misleading the medical witness; and we, therefore, conceive it to be our duty to point them out, in order that they may be corrected in a future edition of the work. In commencing his subject, we find him making this extraordinary statement:

"In a medico-legal point of view, no child ought to be considered as capable of sustaining an independent existence until the seventh month (of gestation) has been fully completed. Accordingly, if it can be proved that the child which is the subject of investigation has not attained this age, no charge of infanticide can or ought to be entertained." (P. 68)

We have known an ignorant coroner in this country refuse to hold an inquest on the body of a child under the seventh month, because it was laid down by some law-authority that children *could not be born alive* under that age. Now, we have to observe that the law of England, and we presume, from Dr. Beck's subsequent remarks on American legislation, the same holds in the States, does not require that a child should be capable of sustaining an independent existence in order to render its wilful destruction after birth murder. Indeed, it is absurd to suppose that the destruction of a child born alive under the seventh month of pregnancy would be suffered to pass unpunished in either country. We have, in our own experience, known a child, born between the sixth and seventh month, live a fortnight; and certainly cases are not unfrequent in which children brought into the world at this early period survive some hours. But, because these immature beings are not likely to maintain an independent existence, is the killing of them to be permitted to take place with impunity, in a country which pretends to any degree of civilization? If not, how can Dr. Beck justify the position that a charge of infanticide neither *can* nor *ought* to be entertained when the child has not reached the seventh month?

Some remarks are made respecting the chemical composition of the fetal blood, as furnishing evidence of live birth or the contrary. These might have been well omitted: the differences in the blood of the child

before and after respiration are slight: they require time for their development, and the most careful chemical analysis for their detection. In the generality of cases of infanticide, the child being destroyed in the act of birth, or immediately afterwards, there can be no appreciable difference in the chemical composition of this liquid. There follows a very good account of Bernt's observations on the changes in the foramen ovale and ductus arteriosus after birth; but we are inclined to think that the author has had no practical experience on this subject, or he would not have hazarded the assertion:—

"If, therefore, *the ductus arteriosus be found cylindrical in its shape, and not contracted towards the aorta, and if it equal in size the trunk of the pulmonary artery*, the inference would be that the child was not born alive." (P. 76.)

The italics are the author's own: we shall only observe, that, if this statement were relied on, it would give rise to the gravest errors in practice. We have lately met with two cases in which the ductus arteriosus had all the characters here represented, and yet both of these children were born alive: one survived its birth half an hour, and the other twenty-four hours. Besides, the charge is not contingent upon a child being *born* alive, but upon the degree of perfection with which the respiratory process has been performed. There are several other errors in this part of the essay which we shall pass over, because they are unimportant and can have but little effect on medical evidence. One statement, however, must be alluded to, as a reliance on it would positively place the life of an accused female in danger. It is in relation to that frequent occurrence,—“the presence of ecchymosis or extravasation of blood on the body of the child.” “This,” observes Dr. Beck, “is the last sign to show that the blood has circulated after birth.” (P. 94.) We are at a loss to conceive how such an opinion could have been expressed, since it requires but a very limited experience to know that extravasations and ecchymoses of large extent may not only be formed on the body of the child before birth, but before respiration is established. How, therefore, can these marks show that the blood has circulated *after birth*? They furnish good evidence of the child having been alive when they were received; but they afford no proof of its having been born alive.

The author discusses largely the value of the hydrostatic test; but he falls into the error of asserting “that, when the lungs of a child float in water, it must have respired, and *therefore must have been born alive*.” (P. 101.) We have already entered fully into this question, and we shall therefore decline saying more on the subject. Dr. Beck will excuse us for telling him that, “when lungs which have actually respired are cut into,” the incisions are not always followed by a flow of blood. In order that this should be observed, respiration must be much more completely established than the examiner is likely to find it in most cases of child-murder. So, again, instead of quoting Bernt, as to the effect of air artificially introduced into the lungs, (99,) in producing a change of colour in those organs, we would advise him to perform the experiment himself, when he will find that, according to the manner in which the inflation is accomplished, their colour will resemble more or less closely that produced by natural respiration. We must also protest against the assertion, that when “a child has been born dead, the arteries and veins of the lungs are found *destitute of blood*, and in a collapsed state,” (108;)

for it is by no means unusual to find blood in the pulmonary vessels of children which have been born dead without respiring.

We should have scarcely supposed that Dr. Beck would have found it worth his while to argue the question as to whether a child can breathe during birth, while its head is protruding; or to quote authorities in support of a fact with which we presume most professional men must be familiar. We agree with him that the death of a child, under these circumstances from natural causes, is not very probable; and we approve of the judicious summary which he has made of these causes. Still, the medical jurist must remember that a child may perish on such occasions, independently of all criminal violence.

In taking our leave of Dr. Beck, we assure him it is with regret that we have felt ourselves obliged to point out what we consider to be serious errors in his volume. We find ourselves the more imperiously called on to do so, because the Essay on Infanticide, although now separately published, forms a part of his brother's admirable "Elements of Medical Jurisprudence;" a work of most deserved authority, and very extensively circulated among the members of the profession both in this country and America. The great defects, however, of the Essay on Infanticide, are its want of arrangement and its redundancies. By these the author has in a considerable degree destroyed its utility as a practical guide to the medical witness; for it is by this rule, after all, that our author must submit to be tried. That Dr. Beck is a man of most extensive erudition will at once appear from a perusal of his work. He quotes authorities without number from all countries and on all subjects, whether directly or indirectly bearing upon the matter which he is discussing. It is thus, in an earnest endeavour to prevent his work from appearing deficient in facts or reasonings, that he has needlessly burthened it with details which, we are sure, slight reflection would prove to him to be unnecessary.

ART. VII.

1. *Pharmacopæia Collegii Regalis Medicorum Londinensis*.—Londini, 1836. 8vo. pp. 208 and xxxii. 32mo. pp. 216 and xxxv.
2. *The Translation of the Pharmacopæia of the Royal College of Physicians of London*, 1836. *With Notes and Illustrations*. By RICHARD PHILLIPS, F.R.S.L. & E. & C; Lecturer on Chemistry at St. Thomas's Hospital. *By Permission*.—London, 1837. 8vo. pp. 392.
3. *The Pharmacopæia Collegii Regalis Medicorum Londinensis, translated, with a Commentary, chemical, pharmaceutical, and medicinal*. By D. SPILLAN, M.D., Fellow of the King and Queen's College of Physicians in Ireland.—London, 1837. 12mo. pp. 308.
4. *A Translation of the New Pharmacopæia of the Royal College of Physicians of London; with Notes and Criticisms*. By G. F. COLLIER, M.D., Member of the Royal College of Physicians, &c. &c.—London, 1837. Royal 8vo. pp. 272.

THIS work has been long and anxiously expected by the profession, and by many it has been thought to be too long delayed. The publication

of a Pharmacopœia, however, by the highest authority, is a serious matter: it signalizes an era, not only in the ancillary sciences of botany and chemistry, but in the practice of physic itself; and we are therefore not among the foremost to complain, if the publication of a formulary, which must be the text-book of fifteen or twenty thousand practitioners, is accompanied rather by an excess than a deficiency of cautious delay. So rapid is now the advance of pharmaceutical and medical knowledge, that, while only three Pharmacopœiæ were published during the whole of the last century, namely, in 1720, 1745, and 1787, three have been already issued during the present, namely, in 1809, 1824, and 1826.*

The one before us, although not free from errors and imperfections, is not unworthy of the present state of science, or the character of the learned body from which it has proceeded. We cannot, however, but regret extremely that the design of the London College of compiling a Pharmacopœia in conjunction with the Colleges of Edinburgh and Dublin, was not accomplished. The negotiations set on foot for this purpose were, it seems, begun, but were ultimately broken off, owing chiefly to the mutual distance of the parties. The advantages of a British or national Pharmacopœia are so obvious, that it is needless to dwell upon them here; but we trust that the time is not far distant when not only this object will be attained, but others of still greater importance, calculated to draw into closer union all the members of our common profession throughout the empire.

Mr. Phillips's Translation is exact, though in some places rather too literal; and the chemical notes which he has appended are excellent. At the request of the College, he "either conducted or inspected the preparation of almost every medicine which has been introduced, and in many cases repeated the processes which the Pharmacopœia already contained." (*Advertisement*, p. v.) The nature and object of his remarks are thus stated by himself:

"In preparing the remarks which accompany this Translation, my attention has been directed to two classes of persons:—First, those who may have been for some time engaged in the practice of physic, but who, not having watched the rapid progress which chemistry has made within a few years, are imperfectly acquainted with the important changes which it has produced by the introduction of new medicines from various and unexpected sources. The other class to which I allude is the numerous one of medical students: to these I have found, by no inconsiderable experience, that concise descriptions of the chemical changes which occur during the preparation of medicines have been extremely useful. They who know how small the portion of time is which the medical pupil has at his disposal for the acquirement of chemical

* We might have added the one of 1815, which, though commonly reputed a mere reprint of that of 1809, does in reality differ from it, as we shall afterwards have occasion to show; but then the same kind of improved reprints had probably occurred in the last century likewise: thus, Dr. Powell tells us that "it will explain some seeming inaccuracies in the references to the Pharmacopœia of 1787, if I mention that successive editions have varied somewhat from each other, and that unfortunately they have been confounded together. The quarto and the first duodecimo agree together; an octavo was afterwards published with alterations, and a duodecimo since with more alterations still, and these can only be distinguished by looking for some known point of difference between them in the body of the work." (*Translation of the Pharmacopœia of 1809*, second edition. *Preface*, p. xxviii.)

Mr. Phillips always calls it the edition of 1788, instead of 1787; and so does Gray, in his *Supplement to the Pharmacopœia*. (Fourth edit. 1828.)

and pharmaceutical knowledge, will readily admit the propriety of assisting his progress by familiar modes of illustration. With this latter view, I have made much use of diagrams." (*Adv.* p. v.)

We wish that, for the sake of students, Mr. Phillips had explained the notation of the chemical symbols which he has adopted from Berzelius, Brande, and Turner.

He has chiefly derived his account of the uses of medicines from Dr. Hue and Dr. Paris; but in this department he is too laconic, and it is to be regretted that those eminent physicians did not contribute to this part of the work on a scale proportioned to its utility. Mr. Phillips's book, however, is one of remarkable merit, and, like his previous ones on the same subject, will be a mine for all subsequent commentators on the *Pharmacopœia*.

Dr. Spillan's work constitutes a compendious Dispensatory, not devoid of merit, though, from the extreme haste with which it was brought out, it necessarily contains more errors than it would have done had the author allowed himself a reasonable time for its composition. There is more of chemistry and a good deal less of medicine in it than we anticipated. From a practical physician like Dr. Spillan, we might expect that the remarks on the therapeutical qualities and administration of the different medicines would be fuller than in the work of Mr. Phillips; and, generally speaking, this is the case; yet the difference is less than might have been looked for.

This gentleman seems unfortunate in the circumstances under which he undertakes his literary engagements. It is not long since we found it necessary to criticise his mode of rendering into his native tongue a foreign work of great importance, (See our Review of his Translation of Andral, Vol. I. p. 188;) and he has laid himself open to a like censure, although in a lesser degree, on the present occasion. In both cases, we believe, the defects in his performance have sprung from his having executed his task too hastily; and in neither case, we apprehend, will this be received by the profession as a sufficient excuse. When a medical writer condescends, from the importunities of publishers, or any other considerations extrinsic to science, to come before the public, without regard to the appearance he may make, he has certainly forfeited his claim to the indulgence of critics, at least, if not also of his readers generally.

Dr. Collier's book is on the same general plan, yet considerably different from the other two translations. It is much fuller in its therapeutical details, and much less explicit in its chemical explanations. The translation is correct, though not always very neat; and the pharmaceutical and practical additions are for the most part sensible, and bear the stamp of experience. The volume, however, is greatly disfigured by the general style of the criticisms contained in it. These are throughout marked by an angry and bitter tone, which, to say the least of it, is ungraceful and undignified, and assuredly exposes the author as much as the censors of the College. The advertisement of the original, and its authorized version by Mr. Phillips, was accompanied by an announcement that the College would not permit any other translation. To us it seemed probable that this mistaken notice was to be attributed rather to the publisher than to the College. Dr. Collier, however, thought other-

wise, and put forth a facetious pamphlet, in which he overwhelms that learned body with indignant merriment; and not only reproaches them with this their mistake touching the true construction of the Copyright Act, but with all and singular their mistakes from the beginning of time. These subjects, though discussed, were by no means exhausted in the pamphlet, and they are resumed in the work before us. The author tells us, that "he resents the injury the College have inflicted on one *who has certain claims on their consideration, which will be understood as well by their fellows as by their licentiates*," (p. iv. ;) and he concludes his preface with these words "To the Censors he has merely to say, 'Gentlemen, behold the book!' Now, therefore, 'resist,'—or recant, or retreat,—with what silent dignity you may!"

We know not exactly what claims Dr Collier may have on the consideration of the London College, nor the extent of the provocation he has received from it: we do not even deny that many of his criticisms are just in point of fact: it is on the ground of taste and propriety that we blame him, for loading the pages of an elementary didactic work with taunts, reproofs, and recriminations, totally at variance with the character of such a work. When neither too brief nor too wrathful, Dr. Collier is always instructive; and if he will, in his next edition, forego his resentment, and fill up his columns with additional practical matter; and if, at the same time, he lessens his type and page, and consequently his price, we will promise to his work every success. We would also advise him to introduce, like Mr. Phillips, all the old synonymes, a thing absolutely necessary to keep the older practitioners in the right path.

Both Mr. Phillips and Dr. Collier have added a table of doses, which will be useful to young practitioners, many of whom will wish that they had accentuated the words, and thus given the *quantities* in a double sense. We might find much to say upon this table, by comparing the doses with those given by authors who have extolled a favorite remedy, as in the cases of tartar emetic, carbonate of iron, and alum; but to every thinking reader such reflections will be sufficiently obvious.

In executing our present task, we are not disposed to follow the example of Dr. Collier, although there are not a few faults in the *Pharmacopœia*, both of omission and commission, which are very open to criticism. At another time, perhaps, we may advert to these in detail; on this occasion, we wish to confine ourselves chiefly to the making our readers acquainted with the *Pharmacopœia* such as it is, and with the principal alterations that have been made in it. We shall, however, as we go along, notice such of the commentaries of the different translators as relate to the action and use of new or important remedies, with the view of giving the article as practical a character as possible.

Weights and Measures. Instead of the wine gallon, the imperial is now to be used; so that the gallon and the pint will be larger, in the proportion of about five to four, (or, more exactly, in the proportion of 277.274 to 231;) but, as the College have now divided the pint into twenty ounces instead of sixteen, the ounce, drachm, and minim will be the same as before, within an insignificant fraction.

After observing, as formerly, that acids, alkalies, &c. should be kept in stoppered glass bottles, they add, that some preparations require the bottles to be black or green.

The saturation of alkalies or acids is to be tested by litmus and turmeric: this improvement is introduced into the formula for *Liquor Ammoniae Acetatis*.

Specific gravities are to be taken at 62° instead of 55° of Fahrenheit. Crucibles are to be either Hessian or Cornish.

Nomenclature. The alterations of nomenclature are numerous, but in many cases inevitable. The College having once adopted the plan of giving names supposed to express the chemical nature of substances, it is impossible to retain them when the names have been demonstrated to be erroneous; and it is therefore obvious that such names as *Hydrargyri Submurias*, *Hydrargyri Oxymurias*, &c. must be expunged: but we agree with Hufeland, and we believe with the majority of practitioners, that for practical purposes it would be far better to retain the old names, as calomel, corrosive sublimate, &c., which involve no chemical theory, and are therefore not so fleeting as the scientific appellations. For the benefit of those who wish to study chemistry, a *Pharmacopœia* should contain the synonymes of the day, but, for the benefit of practical men, it should contain permanent names.

Something similar might be said of the botanical appellations, where, from the perpetual splitting of genera, no name is safe. There is an additional inconvenience attending this shifting nomenclature, as it occasions trouble, and even doubt, to the reader, whenever he turns to the authors of a period wherein names were used which a new *Pharmacopœia* has made obsolete.

Materia Medica. In the names of plants, the College chiefly follow Linnæus, Willdenow, and De Candolle, though Don, Smith, Sprengel, and others are often referred to; in those of animal substances, their authority is Cuvier; in chemical names, they follow recent writers, without selecting any one in particular.

The following articles are new; that is, are not in the *Materia Medica* of the last *Pharmacopœia*.

Aconiti radix; *Ammoniae liquor fortior*, (specific gravity .882;) *Aurantii flores*; *Aurantii oleum*; *Barytæ carbonas*; *Bergamii oleum*, (oil of bergamot;) *Brominium*; *Calcis hydras*, (slacked lime;) *Calx*; *Carbo animalis*; *Chimaphila*, (winter-green, or pyrola;) *Creasoton*; *Curcuma*, (turmeric;) *Diosma*, (buchu;) *Ergota*; *Ferri Percyanidum*, (percyanide of iron, or Prussian blue;) *Hirudo*; *Iodinium*; *Lacmus*, (litmus;) *Lactucarium*; *Limonum succus*; *Lini oleum*; *Lobelia*; *Manganis binoxidum*; *Maranta*, (arrow-root;) *Nux vomica*; *Pareira*; *Phosphorus*; *Potassæ chloras*; *Potassi ferrocyanidum*; *Quina*; *Sabadilla*; *Sago*; *Sodæ acetas*; *Sodæ phosphas*; *Sodii chloridum*; *Spiritus vini Gallici*, (brandy;) *Vinum Xericum*, (sherry.)

We shall confine ourselves to a few observations on these substances.

The root of aconite is used in making aconitina.

The stronger solution of ammonia contains about thirty per cent. of ammonia, and is therefore three times as strong as the ordinary solution; it may consequently be reduced to the strength of the *Liquor ammoniæ* by mixing it with a double quantity of distilled water. In the passage where this fact is stated, there is an erratum of *tribus* for *duabus*, at p. 29 of the 8vo, and p. 34 of the 32mo edition. These misprints are not mentioned in the tables of errata. Mr. Phillips has, in like manner,

"three" for "two," (p. 25,) but has given the latter in his list of errata. Dr. Spillan has noticed the mistake in a note to his translation, p. 24; Dr. Collier has not. For a table showing the weight of pure ammonia contained in one hundred parts of the solution, at different specific gravities, the reader may consult Sir H. Davy's Elements of Chemical Philosophy, p. 268, or Brande's Manual of Pharmacy, p. 215.

Chimaphila leaves are diuretic; and a decoction of them is among the preparations.

Lactucarium is the inspissated juice of the *Lactuca sativa*, and very nearly resembles, if it is not identical with the *Extractum Lactucæ*, which afterwards occurs among the preparations. We believe the chief difference between the two preparations is, that the original *Lactucarium* of Dr. Duncan is the inspissated juice collected from the growing plant, by cutting off the heads of the plant when in flower; while the College extract is formed from the juice expressed from the pounded leaves. The former is the stronger narcotic; Dr. Collier stating its dose to be from gr. ij. to gr. iv., while that of the extract he fixes at from gr. v. to ʒj.

Pareira root is assigned to the *Cissampelos Pareira*, on the authority of De Candolle; it is more commonly known by the name of *Pareira brava*. It has been of late years much used by surgeons; and has, in particular, been highly extolled by Sir B. Brodie, who, after observing that he has been disappointed in the use of the *uva ursi* in chronic inflammation of the bladder, says, "I have seen much more good done by a very old medicine, which has been long ignominiously but unjustly expelled from the Pharmacopœia of the College of Physicians, namely, the root of the *Pareira brava*; and, with regard to this, I am satisfied that it has a great influence over the disease which is now under our consideration, lessening very materially the secretion of the ropy mucus, which is in itself a very great evil, and, I believe, diminishing the inflammation and irritability of the bladder also." (*Lectures on the Diseases of the Urinary Organs*, p. 88-9.)

Sabadilla (or *Cevadilla*) seeds are assigned to the *Helonias officinalis*, on the authority of Don: veratria is procured from them.

The following substances in the *Materia Medica* of the last Pharmacopœia are omitted in that of the present one:—*Acetosæ folia*; *Acidum aceticum fortius*; *Acidum citricum*; *Bistortæ radix*; *Hellebori foetidi folia*; *Lactuca*; *Linum catharticum*; *Magnesiae subcarbonas*; *Rubiæ radix*; *Salicis cortex*; *Spongia*; *Tartarum*.

The alterations in the nomenclature, &c. of the *Materia Medica* are very numerous; the following list contains the greater part of them.

We may preface it by observing, that a very brief method of designating the articles has been adopted in the left-hand column of the list, as well as in the body of the work. Thus, *Senna* stands for *senna leaves*, *Adeps* for *Adeps præparatus*, *Uva* for *stoned raisins*, &c.; but, as the meaning of the left-hand column is always defined in the right, brevity has been gained without obscurity.

Acidum Sulphuricum is directed to be of the specific gravity 1.845, instead of 1.850.

Alumen is called a sulphate, instead of a supersulphate, of alumina and potass.

Ammoniacum is assigned to the *Dorema Ammoniacum*, instead of the *Heracleum gummiferum*.

Antimonii sesquisulphuretum stands instead of *Antimonii sulphuretum*.

Aurantii cortex is assigned to the *Citrus vulgaris*, instead of the *Citrus Aurantium*; but the fruit is put down, as formerly, to the *Citrus Aurantium*; after which the word *Hispalense* is omitted.

Balsamum Peruvianum and *Bals. Tolutanum* are both ascribed to the *Myrozylon peruvianum*; the former being the liquid, and the latter the concrete balsam: the latter was ascribed in the last Pharmacopœia to the *Toluifera Balsamum*.

Borax is called a biborate, instead of a subborate of soda.

Cardamomum is put down to the *Alpinia Cardamomum*, instead of the *Matonia Cardamomum*.

Caryophyllus is ascribed to the *Caryophyllus aromaticus*, instead of the *Eugenia caryophyllata*.

Castoreum is said to be a *concretum in folliculis præputii repertum*, instead of a *concretum sui generis*.

Centaurium is assigned to the *Erythræa Centaurium*, instead of the *Chironia Centaurium*.

Cetraria islandica has replaced the *Lichen Islandicus*.

Cinchona is divided into the same species as before, but Lambert is referred to as the authority, instead of Zea.

Copaiba is assigned to the *Copaifera Langsdorffii*, instead of the *Copaifera officinalis*.

Crocus is no longer necessarily *Anglicus*, and the stigmata are directed to be dried.

Cusparia, formerly assigned to the *Cusparia febrifuga*, on the authority of Bonpland, is now set down to the *Galipea Cusparia*, in accordance with De Candolle.

Cydonia is assigned to the *Cydonia vulgaris*, instead of the *Pyrus Cydonia*.

Fici stands instead of *Caricæ fructus*.

Feniculum is put down to the *Feniculum vulgare*, instead of the *Anethum Feniculum*.

Galbanum is assigned to the *Galbanum officinale*, instead of the *Bubon Galbanum*.

Gallæ were formerly defined to be the nest of the *Cynips Quercus folii*; but now are asserted to be the diseased buds of the *Quercus infectoria*.

Helleborus (the root of black hellebore,) is set down to the *Helleborus officinalis*, instead of *niger*.

Jalapa is ascribed to the *Ipomœa Jalapa*, instead of the *Convolvulus Jalapa*. This is stated to be on the authority of a MS. of Mr. Don; but we believe that jalap has been called the produce of an *Ipomœa* for some time. Thus, the late Professor Burnett says, "*Ipomœa* (or *Convolvulus*) *Jalapa* yields that well-known and useful purgative which bears, with the plant from which it is procured, a common specific name." (*Outlines of Botany*, p. 1003.)

Ipecacuanha is ascribed to the *Cephaelis Ipecacuanha*, instead of the *Callicocca Ipecacuanha*.

Kino is ascribed to the *Pterocarpus erinaceus*, instead of the *Pterocarpus erinacea*.

Limones are ascribed to the *Citrus Limonum*, instead of the *Citrus Medica*.

Manna is assigned to the *Ornus europæa*, instead of the *frazinus Ornus*.

Moschus is called *Humor in folliculo præputii secretus*, instead of *Concretum sui generis*.

Mucuna stands for *Dolichos*, (cowhage.)

Myrrha, formerly called *Arboris nondum descriptæ gummi-resina*, is asserted to be the gum-resin of the *Balsamodendron Myrrha*, on the authority of Ehrenberg.

Olibanum is said to be derived from the *Boswellia serrata*, instead of the *Juniperus Lycia*.

Opium is no longer necessarily Turkish.

Opopanax is said to be derived from the *Opopanax Chironium*, instead of the *Pastinaca Opopanax*.

Saccharum formerly meant brown sugar, and *saccharum purificatum* the refined; but now *Sacchari fæx* is used for treacle, and *Saccharum* for refined sugar.

Sagapenum, formerly called *plantæ nondum descriptæ gummi-resina*, is now said to be the gum-resin of a *Ferula species incerta*.

Sapo now stands for *Sapo durus*, and is no longer limited to the Spanish kind.

Sarsaparilla is now called *Sarza*, and is assigned to the *Smilax officinalis*, instead of the *Smilax Sarsaparilla*.

Sassafras. The root only is now officinal, the wood being omitted.

Scammonium (the gum-resin,) stands for *Scammonea*: the name of the plant is still *Scammonea*.

Scoparius, set down to the *Cytisus Scoparius*, stands for *Spartii cacumina*, formerly set down to the *Spartium scoparium*. The tops are ordered to be fresh: it was not directed what state they were to be in before.

Senna, formerly set down to the *Cassia Senna*, is now assigned both to the *Cassia lanceolata* and the *C. obovata*.

Simaruba (instead of *Simarouba*;) is assigned to the *Simaruba officinalis*, instead of the *Quassia Simarouba*; and the bark of the root is directed to be used, instead of simply the bark.

Spiritus rectificatus is directed to be of the specific gravity .838, instead of .835.

Spiritus tenuior is directed to be of the specific gravity .920, instead of .930, so as to be of the strength prescribed by Act of Parliament for proof spirit.

Stannum no longer has the definition *Stanni limatura* in the right-hand column.

Sulphur is now defined to be *Sulphur sublimatum*: formerly both substances stood in the left-hand column.

Tubacum is no longer limited to the Virginian sort.

Tormentilla is assigned to the *Potentilla Tormentilla*, instead of the *Tormentilla officinalis*.

Tragacantha is called a concrete juice, instead of a gum.

Uva ursi is assigned to the *Arctostaphylos Uva ursi*, instead of the *Arbutus Uva ursi*.

Zingiber is made of the feminine instead of the neuter gender.

In the list of the *Materia Medica*, as well as throughout the work, *di* stands instead of *sub* in the names of the sub-salts; as, *diacetat* instead of *subacetat*. Many of the botanical terms have been reformed: thus, the *cormus* stands instead of the *bulbus* of colchicum, the *bulbus* instead of the *radix* of *allium*, the *fructus* instead of the *bacca* of *aurantium*, and the *rhizoma* instead of the *radix* of *zingiber*. In the names of plants, gentile adjectives are now made to begin with a small letter; as, *Ornus europea*, *Spigelia marilandica*.

The part of the work which we have just noticed is followed by a section which is entirely new, and extremely useful: it consists of notes, chiefly on the chemical preparations, by which their purity may be ascertained. To the translations of these tests the authors have added explanatory remarks, which will be a treasure to students. The following is a specimen:

***ACIDUM HYDROCYANICUM DILUTUM.** *Dilute Hydrocyanic Acid.*—Free from colour; goes off in vapour by heat, exhaling its peculiar odour. It turns litmus of a light fugacious red colour; hydrosulphuric acid, when added, does not discolour it. One hundred grains of this acid, when solution of nitrate of silver is added, precipitate 10 grains of cyanide of silver, which are readily dissolved by boiling nitric acid. If the iodo-cyanide of potassium and mercury, when mixed with the hydrocyanic acid, is reddened, it contains some other acid. In 100 grains of this diluted acid, there are contained 2 grains of real hydrocyanic acid; and to this standard, in whatever mode it is distilled, we direct it should be reduced.

Remarks. Its total evaporation shows the absence of fixed impurity. If the hydrocyanic acid reddens litmus paper strongly and permanently, then some other acid is mixed with it: the absence of most metallic salts is denoted by the non-action of hydrosulphuric acid. If the hydrocyanic acid contains hydrochloric acid, then the precipitate formed by nitrate of silver, being chloride of silver, is insoluble in the nitric acid. Any acid mixed with the hydrocyanic acid decomposes the iodo-cyanide of potassium and mercury, and forms biniodide of mercury, which is of a red colour." (*Phillips*, p. 22.)

The reason does not appear clear why the mode of determining the strength of hydrocyanic acid by its specific gravity should not have been adopted, as in the case of all the other liquid acids. We believe it to be susceptible of equal, if not greater accuracy than the one directed, and it is certainly less tedious and complicated.

Dr. Collier seems to entertain no very high opinion of the therapeutic value of this medicine. "It is commonly used for suicide, (he says,) and is fit for little else, with the exception of its use externally as a lotion in some cutaneous diseases, attended with intolerable pain and itching, and not extended over too large a surface." (P. 54.) We agree with him so far as to believe that few remedies are more frequently prescribed without obvious effect. Surely, however, Dr. Collier's definition of the dose,—"*internally, from five minims upwards*,"—is not sufficiently close for so dangerous a remedy: it is adding the risk of chance-medley to suicide.

Under the head of *Aconitina*, the very proper caution is given, "*viribus hæc induta violentis, non temerè adhibenda est.*" Similar advice is given under the heads *Strychnia* and *Veratria*. As it is the office of a *Pharmacopœia* rather to indicate established remedies, than those which are yet struggling for existence, we think it would have been as well if the first and last of these three potent alkaloids had been omitted: the

practitioners who have confidence in them might still have prescribed them, without their being necessarily kept by every druggist in England.

The *Præparata et Composita* are arranged in alphabetical order; as the *Acida*, *Ætherea*, *Alkalina*, &c.

Acida. Under this head we find five new preparations; namely, *Acidum Aceticum*, *Acetum Cantharidis*, *Acidum Hydrochloricum dilutum*, and *Acidum Phosphoricum dilutum*. The acetic acid is made by decomposing the acetate of soda with sulphuric acid, by which a purer, but we fear a much dearer, acid will be produced than the pyroligneous acid of the last Pharmacopœia. The *Acid. Hydrochl. dil.* (dilute muriatic acid,) is formed by mixing one part of the strong acid with three of distilled water, and is rather stronger than dilute sulphuric acid; for,

“One fluidrachm of the under-mentioned diluted Acids saturates, very nearly, the annexed quantity of crystallized Carbonate of Soda:

“Acidum Hydrochloricum dilutum	. . .	32 grains.
Acidum Sulphuricum dilutum	. . .	28 —
Acidum Nitricum dilutum	. . .	19 —.”

(*Phillips's Translation*, p. 62.)

The dose of the dilute phosphoric acid is stated by Mr. Phillips to be from mxx. to f.3j. ; by Dr. Spillan, from mxx. to zss. ; and by Dr. Collier, from mxxv. to zj. Lobstein gave it, in phthisis, in the dose of twenty or thirty drops in a glass of *eau sucrée* made with distilled water, every three hours. It was necessary that the case should be free from any inflammatory complication, and the patient drank sugared milk after every dose. (*Formulaire de Magendie*, 8e Edit. p. 392.)

The *Acidum Aceticum dilutum* of the late Pharmacopœia is now more conveniently called *Acetum destillatum*.

An important improvement has been effected in the process for making tartaric acid. Formerly, the bitartrate of potash gave up only its excess of acid; but now the remaining tartrate of potash is also decomposed.

“Take of Bitartrate of Potash four pounds,

Boiling distilled Water two gallons and a half,

Prepared Chalk twenty-five ounces and six drachms,

Diluted Sulphuric Acid seven pints and seventeen fluidounces,

Hydrochloric Acid twenty-six fluidounces and a half, or as much as may be sufficient.

“Boil the bitartrate of potash with two gallons of distilled water, and add gradually half the prepared chalk; afterwards, the effervescence having ceased, add the remainder of the chalk, first dissolved in the hydrochloric acid with four pints of distilled water. Lastly, set by, that the tartrate of lime may subside; pour off the liquor, and wash the tartrate of lime frequently with distilled water, till it is free from taste. Then pour on it the diluted sulphuric acid, and boil for a quarter of an hour. Evaporate the strained liquor with a gentle heat, that crystals may be formed.

“Dissolve the crystals, that they may be pure, again and a third time in water, and strain it as often; boil down, and set it aside.” (*Phillips's Translation*, p. 78.)

Ætherea. The late Pharmacopœia contained an *Æther sulphuricus*, and also an *Æther rectificatus*; the former, to quote the words of Mr. Brande, “being a sulphurous mixture of æther, alcohol, and water, probably never intended to be prescribed, and certainly quite unfit for medicinal use; but, in chemical language, sulphuric æther and rectified æther are synonymous; and if the physician prescribes the former instead of the latter, (a mistake which frequently happens,) it is probable that

the patient may get the heterogeneous compound just adverted to, instead of the pure æther which was intended." (*Manual of Pharmacy*, p. 455-6.)

The possibility of error has now been taken away, for the purified preparation alone remains, and bears the name of *Æther sulphuricus*. The *Spiritus ætheris aromaticus* and the *Spiritus ætheris sulphurici* have also been omitted: the method of making the *Oleum æthereum* has been improved.

Alkalina. Under this section we have the following new articles:—*Aconitina*, *Morphia*, *Morphia acetat*, *Morphia hydrochloras*, *Quina disulphas*, *Strychnia*, and *Veratria*. The *Ammonia subcarbonas* is now called *Ammonia sesquicarbonas*.

The following observations of Dr. Collier on the new preparations of opium are interesting.

"The superiority of acetate and muriate of morphia over the old preparations of opium has been explained by the supposition of its acting as an anodyne without producing the subsequent derangement of the brain attended with headach, vertigo, sickness, and febrile symptoms, of which patients so often complain, and these last effects (without much evidence) have been ascribed to the narcotin of the drug." . . . "Long before the discovery of morphia, it had been noticed, that certain acidulated preparations of opium produce the anodyne effects of that drug without the subsequent disturbance of the brain and stomach. Hence, the reputation of the Sunderland drop, the black drop of Braithwaite, and several preparations made with lemon-juice. Then came the discovery of the alkali; and we were told, that the stupifying power resides in the narcotine, and the sedative or anodyne power in the alkaline. Now, Bally asserts, that narcotine has little or no action on the human body. Orfila considers it stupifying and deleterious; while Magendie deems it a powerful excitant. Subsequent discoveries have shewed (whether as products or educts is a matter of doubt) that opium, besides meconic acid and morphia, contains five alkaloids, viz. codeia, narceia, meconia, thebaia, and narcotina. Their medicinal action, indeed, has not yet been determined, but the complexity of the constitution of the drug will perhaps account for the difference of opinion on the medicinal properties of the narcotine. The Editor has observed, that with opium-eaters the salts of morphia are not adequate substitutes, at least, as far as his observation has extended; and this renders it probable, that the stimulant properties reside either in the narcotine or in some other principle. As new wine will produce headach, so will new opium; but age (if we may trust to the experience of the habitual consumers) equally improves the drug, and corrects that stupifying and pernicious quality which so often embarrasses the head and stomach. If this view of the salts of morphia be correct, they must be inefficient for all stimulant indications; inefficient to support the powers of life in variola coagulans, and in typhoid diseases; inefficient in the cold stages of ague to bring on the hot; and inefficient to support the vigour of the circulation in abscesses. On the other hand, they will be more applicable where anodyne effects are alone aimed at." . . . "This salt [the hydrochlorate] is uniform in its constitution; but the acetate of morphia varies. Besides it has another advantage over the acetate, in not being deliquescent; whereas the neutral acetate is decomposed by water." (P. 63-4.)

Dose of Acetate, from gr. $\frac{1}{10}$ to gr. j.; of Hydrochlorate, gr. $\frac{1}{4}$ to gr. ij. (Collier.)

Animalia. This section contains one new substance, *Carbo animalis purificatus*. *Spongia usta* has been omitted.

Aqua destillata. Two new waters have been added; namely, *Aqua florum Aurantii* and *Aqua Sambuci*. In noticing the preparation of the latter, Dr. Collier asks, "Where is the oil to be obtained? They do not mean the green oil?"—forgetting that the particular oil to be used (viz. that distilled from elder-flowers,) is given among the *Olea destillata*.

Cataplasmata. Here are two additions, the *Cataplasma Conti*, and the *Cataplasma Lini*. On the former of these, which is directed to be made with two ounces of Extract of Hemlock, Dr. Collier very properly asks, "How is a poor man to pay for such a poultice, requiring to be renewed twice a day?" He recommends as a substitute four ounces of hemlock leaves boiled in half an ounce of lard, of which a portion is to be spread over a common poultice.

Cerata. A *Ceratum Hydrargyri compositum* has been added. The *Ceratum simplex* is now called merely *Ceratum*. In directing the method of making *Ceratum Saponis*, the College say, "R. Saponis uncias decem," on which Dr. Collier asserts, in his "Cautions," that "hard soap is meant, but selection from a variety is left to the dispenser." (P. 80.)—Not so; for *sapo* is defined in the *Materia Medica* as *ex Olive oleo et Sodâ confectus*.

Confectiones. Water was formerly used in preparing the *Conf. Aromaticæ*, syrup in preparing the *Conf. Opii* and *Conf. Scammonii*, and honey with the *Conf. Piperis nigri* and *Conf. Rutæ*; but, in the first formation of these conserves, the dry ingredients only are now to be used, and the water, syrup, or honey added when the conserve is wanted for use. This is a great improvement, as the conserves prepared in the old way often become mouldy. In his remarks on the *Conf. Amygdalæ*, Mr. Phillips says, that "it is now very advantageously directed that the ingredients should be kept ready mixed in a dry state, and the water added to them when the confection is wanted for use." (P. 128.) No water, however, is directed to be added to them.

Decocta. The majority of the decoctions are now directed to be made with distilled water. The following are new:—*Decoct. Chimaphilæ*, *Decoct. Granati*, *Decoct. Scoparii comp.*, *Decoct. Tormentillæ*, *Decoct. Uvæ ursi*.

The *Decoct. Chimaphilæ*, as formerly stated, is a diuretic. Dr. Collier says it is also slightly astringent, and notices the fact of its great reputation among the American Indians.

The *Decoctum Granati* is ordered to be made from the *bark of the fruit*, and the preparation is stated, both by Mr. Phillips and Dr. Spillan, to be an efficacious remedy in *tapeworm*, as well as dysentery. Now, we find, in all the best accounts published of the use of the pomegranate, that it is the *bark of the root*, not of the fruit, that has been found effectual in *tœnia*. This is the part mentioned by Celsus, ("Mali Punici tenues radículas," Lib. iv. c. 17.) Dr. Gomez, of Portugal, recommends this also; and in the communication of Dr. Buchanan, in the *Edinburgh Medical Journal* for January, 1807, "the fresh rind of the pomegranate root" is given as the Indian remedy for tapeworm. In Mr. Breton's paper on the same subject, in the 11th volume of the *Medico-Chirurgical Transactions*, the bark of the *root* is alone mentioned, as the remedy so successfully employed by him; and, in a recent communication from Dr. Leslie, in the *Medical Gazette*, (March 18, 1837,) we find it stated that the *bark of the fruit*, "which is known to be useful in chronic dysentery and diarrhœa, is not of the slightest use in tapeworm." Our readers must therefore recollect that, in prescribing the officinal preparation of the *Pharmacopœia*, they are ordering the Indian remedy for chronic dysentery and diarrhœa, but not for *tœnia*.

The strength of the decoction of the *Pomegranate-root-bark*, as used for tænia, has been various. The native Indian prescription, as given by Dr. Buchanan and Leslie, is ℥viij. of the bark to Oij. of water, and boiled down to Oij.; the dose, a wine-glassful repeated at intervals. Mr. Breton employed ℥ij. of the root to Ojss., and boiled down to O℥, and gave a wine-glassful every half-hour. The following is the formula contained in Radius's excellent *Heilformeln* for 1836:—R. Cort. Rad. Granati rect. ℥ij.—℥iiij. Macera in Aquæ lb. ij. per xxiv. horas, deinde coque ad rem. lb. j. Filtra, et adde Sacch. alb. q. s. ad grat. saporem. —Dose, the third part every half-hour.

Dr. Collier notices the preferableness of the root in cases of tænia, and recommends it from his own experience. His formula is, two ounces of the bark of the root in a pint of water, boiled down to half a pint, and he recommends the whole to be given in a couple of doses, after an interval of two hours.

The *Decoct. Scoparii comp.* is a very useful diuretic, made with broom-tops, juniper berries, and dandelion root; the *Sp. Armoraciæ comp.* and *Sp. Juniperi comp.* will be good adjuvants.

The *Decoct. Amyli* is the old *Mucilago Amyli*; and the *Decoct. Cetrariæ* is the old *Decoct. Lichenis*, reduced to half its former strength.

The *Decoct. Cinchonæ*, formerly made with the *Cinch. lancif.*, is now made with the *Cinch. cordif.*, with the observation appended, that the decoctions of the *Cinch. lancif.* and the *oblongif.* are made in the same manner. Our readers will recollect that the *Cinch. cordifolia*, or yellow bark, contains the greatest quantity of quina.

Emplastra. The *Empl. Belladonnæ* is new; the *Emp! Cumini* has been omitted.

The following observations of Dr. Spillan on the use of the *Emplastrum Cantharidis* are sensible, and merit attention.

"It should be observed, that, if in spreading the plaster, too hot an iron be employed, the efficacy of the cantharides is considerably diminished. Blisters are commonly allowed to remain on much longer than is necessary—this happens principally in the case of children—and many serious accidents have occurred in consequence. Blisters should never be allowed to remain longer on children than three, or at most four, hours; they should then be removed, even though vesication may not appear to have taken place. Very ugly sores have been occasioned by neglect of this precaution. Where ulceration has been produced by blisters, an emollient cataplasm is the best application that can be made. Where strangury occurs, diluent drinks should be indulged in pretty freely. Before the blister is applied, it is found of use to wash the part in warm vinegar. With respect to the therapeutical effects of blisters, it may be well to observe, that they are intended to act as derivatives or revulsives; and it is no harm to remind the junior practitioner that they never should be employed whilst the fever accompanying internal inflammation is high; they will only serve to exasperate all the symptoms. In fact, the employment of blisters requires, on the part of the practitioner, very serious consideration, though there is no therapeutic agent resorted to among routine practitioners with more *sung froid* than blistering." (P. 102.)

On another preparation of cantharides, however, now for the first time introduced into the Pharmacopœia, the *Acetum Cantharidis*, surely the laconic observation "usq.—stimulant and diuretic," is defective if not erroneous. Mr. Phillips very properly states that this formula "is employed as an extemporaneous blister;" and Dr. Collier's definition is still more

explicit: "A prompt form for counter-irritation, long anticipated by provincial and domestic recipes, as well as by the common practice of fomenting with hot vinegar before the application of a blister." (P. 48.) Dr. Spillan's omitting to notice this, its most legitimate application, is the more remarkable, as it is specifically indicated in the Pharmacopœia by the term *Epispasticum*, subjoined in parenthesis.

Enemata. These are all new: they are the *Enema Aloës*, *E. Colocynthis*, *E. Opii*, *E. Tabaci*, and *E. Terebinthinæ*. Perhaps we ought to have excepted the *Enema Tabaci*, which is the *Infusum Tabaci* removed to this place. It is weaker in the proportion of four to five; being now made with a drachm of tobacco to twenty instead of sixteen ounces of water.

Dr. Spillan says, the *Enema Tabaci* "has been applied as a stimulus to the rectum;" and Mr. Phillips calls it "a very drastic enema, recommended by some in cases of hernia, but with doubtful success." (P. 153.) Dr. Collier very properly calls it "violently depressing and relaxing," it being neither stimulant nor drastic. Its use, as is well known to practitioners, is by no means limited to cases of hernia. Dr. Abercrombie has the highest confidence in its powers in ileus and enteritis; but he begins with a weaker form than the one of our Pharmacopœia, "perhaps fifteen grains infused for ten minutes in six ounces of boiling water: after the interval of an hour, if no effect has been produced, it may be repeated in the quantity of twenty grains, and so on, until such effects are produced, in slight giddiness and muscular relaxation, as show that its peculiar action is taking place upon the system." (*On Diseases of the Stomach, &c.*, 2d Edit. p. 159-60.) We prefer this cautious employment of a remedy, of which the immediate effects are often alarming. Dr. Collier says, "Liquor of Ammonia, with brandy and water, is the best antidote, if the enema produces dangerous depression." (P. 100.)

Extracta. To this section have been added the *Extr. Colchici Cormi*, *Extr. Colchici aceticum*, *Extr. Digitalis*, *Extr. Pareiræ*, and *Extr. Uvæ ursi*. The resinous extract of cinchona has been thrown out, and the watery extract is directed to be made with the *Cinch. cordif.* instead of the *lancifolia*; but with the observation added, that extracts of the *Cinch. lancif.* and *oblongif.* are made in the same way.

Infusa. All the infusions are to be made with distilled water. The following have been added to the list:—*Inf. Diosmæ*, *Inf. Krameria*, (rhatany,) *Inf. Lupuli*, *Inf. Pareiræ*, *Inf. Scoparii*, *Inf. Serpentaria*, *Inf. Valerianæ*. The *Inf. Cinchonæ* is still made with the lance-leaved bark, but the time of maceration is increased from two hours to six.

The *Inf. Digitalis* is much weaker; a drachm of digitalis being used to twenty-one ounces of fluid, instead of eight and a half. On this Dr. Collier interposes his "Caution" as follows: "Mark! Whether by error or design, the College has ordered a drachm to a pint instead of a drachm to half a pint, the old standard. When the practitioner orders the infusion, what are you to do?" If the physician is still calculating upon the old infusion, and the druggist sends, as he ought to do, the new one, the mistake is happily on the safe side; but, if the druggist, in spite of his Majesty's proclamation, persists in making the infusion of the old strength, while the physician intends the new, the consequences might be less pleasant.

The present *Inf. Gentianæ comp.* is stronger than the former one, in the proportion of six to five.

The *Inf. Rosæ comp.* is now made with a greater proportion of rose-leaves, and the time of maceration is lengthened from half an hour to six hours.

Linimenta. The *Linimentum Opii* has been added; the *Linim. Terebinthinæ* altered, by substituting soft soap and camphor for the resin cerate; and the *Linim. Saponis C.* is now called simply *Linim. Saponis*.

Mellita. Oxymel is now made with a pint and a half of strong acetic acid to ten pounds of honey, instead of a pint of distilled vinegar to two pounds of honey; and, instead of the long evaporation formerly required, the honey is now merely heated, and the acid mixed with it.

On this preparation Dr. Collier remarks, in his peculiar style, "You ought not to use this in dispensing, without a distinct understanding with the prescriber of it. The editor has taken the trouble to prepare it, and, finding that the College translator prescribes the dose from a fluidrachm to a fluidounce, feels it his duty to remark, that it is not a fluid in such proportions, and that in such a dose it is so powerful that it would induce spasmodic cough, gripes, &c. The censors ought to be indicted, under Lord Ellenborough's Act, for cutting throats." (P. 127.)

Metallica. The following articles in this section are new:—*Argentii Cyanidum*, *Liquor Argentii Nitratis*, *Barii Chloridum*, *Liquor Barii Chloridi*, *Calx chlorinata*, *Ferri Iodidum*, *Hydrargyri Bicyanidum*, *Hydrargyri Iodidum*, *Hydrargyri Biniodidum*, *Plumbi Chloridum*, (used in preparing the hydrochlorate of morphia,) *Plumbi Iodidum*, *Plumbi Oxydum hydratatum*, (used in preparing the disulphate of quina,) *Liquor Potassæ effervescens*, (potash-water,) *Potassii Bromidum*, *Potassii Iodidum*, (hydriodate of potash,) *Liquor Potassii Iodidi comp.*, *Liquor Sodæ effervescens*, (soda-water,) *Liquor Sodæ chlorinata*.

The *Liquor Ferri alkalinus*, *Vinum Ferri*, and *Hydrargyrum purificatum* are omitted.

The *Antimonii sulphuretum* is now called *Antimonii oxysulphuretum*. *Antimonium tartarizatum* is now called *Antimonii Potassio-tartras*, and the mode of preparation is altered. Mr. Phillips observes, that "in the last Pharmacopœia glass of antimony was used in preparing this medicine: it is, however, not only difficult to obtain it, but glass of lead is frequently substituted for, and, what is still worse, mixed with it." (P. 190.) Mr. Phillips has omitted to observe, that the oxysulphuret of antimony employed in the present formula, was also used in the Pharmacopœia of 1815: indeed, throughout his work, though constantly referring to the Pharmacopœiæ of 1720, 1745, 1788, 1809, and 1824, he makes no mention of that of 1815. The present instance, however, (where the Pharmacopœia of 1809 directs the use of oxide of antimony,) may show him that the Pharmacopœia of 1815 is by no means a mere reprint of that of 1809.

The *Vinum Antimonii Potassio-tartratis* was not called *Liquor Antimonii Tartarizati* in the last Pharmacopœia, as Mr. Phillips asserts, (p. 193,) but *Vinum Antim. Tart.* The use of sherry-wine in this preparation is now restored.

In speaking of the nitrate of silver, Dr. Spillan says, "When the patient has been for some time using this medicine, his skin acquires a

black hue, which continues for a considerable time even after the medicine has been discontinued." (P. 148.) It would be much more correct to say, "his skin occasionally acquires a leaden hue, which unfortunately is permanent;" or, as Dr. Collier expresses the caution, "it should be recollected that the remedy, if long persisted in, may induce permanent discoloration of the skin." To this we would append as a corollary, that this remedy ought hardly ever to be internally administered.

The following are the remainder of the new names in this section:

New Names.	Old Names.
Pulvis Antimonii comp.	Pulvis Antimonialis.
Liquor Potassæ Arsenitis,	Liquor Arsenicalis.
Bismuthi Trinitras,	Bismuthi Subnitræ.
Calcii Chloridum,	Calcis Murias.
Liquor Calcii Chloridi,	Liquor Calcis Muriatis.
Cupri Ammonio-Sulphas,	Cuprum Ammoniatum.
Liquor Cupri Ammonio-Sulphatis,	Liquor Cupri Ammoniat.
Ferri Sesquioxylum,	Ferri Subcarbonas.
Tinctura Ferri Sesquichloridi,	Tinctura Ferri Muriatis.
Ferri Potassio-Tartras,	Ferrum Tartarizatum.
Ferri Ammonio-Chloridum,	Ferrum Ammoniatum.
Tinctura Ferri Ammonio-Chloridi,	Tinctura Ferri Ammoniat.
Hydrargyri Bichloridum,	Hydrargyri Oxymurias.
Liquor Hydrargyri Bichloridi,	Liquor Hydrargyri Oxymuriatis.
Hydrargyri Ammonio-Chloridum,	Hydrargyrum Præcipitatum album.
Hydrargyri Oxydum,	Hydrargyri Oxydum cinereum.
Hydrargyri binoxydum,	Hydrargyri Oxydum rubrum.
Hydrargyri bisulphuretum,	Hydrargyri Sulphuretum rubrum.
Hydrargyri sulphuretum cum Sulphure,	Hydrargyri Sulphuretum nigrum.
Magnesie Carbonas,	Magnesie Subcarbonas.
Liquor Plumbi Diacetatis,	Liquor Plumbi Subacetatis.
Liquor Plumbi Diacetatis dilutus,	Liquor Plumbi Subacetatis dilutus.
Potassæ Carbonas,	Potassæ Subcarbonas.
Liquor Potassæ Carbonatis,	Liquor Potassæ Subcarbonatis.
Potassæ Bicarbonas,	Potassæ Carbonas.
Potassæ Hydras,	Potassa fusa.
Potassæ Bisulphas,	Potassæ Supersulphas.
Potassii Sulphuretum,	Potassæ Sulphuretum.
Sodæ Carbonas,	Sodæ Subcarbonas.
Sodæ Carbonas exsiccata,	Sodæ Subcarbonas exsiccata.
Sodæ Sesquicarbonas,	Sodæ Carbonas.
Sodæ Potassio-Tartras,	Soda tartarizata.

This table will be the more useful to our readers, inasmuch as the usual dictionary of old and new names at the end of the Pharmacopœia has been mutilated by one of its halves: the old names are given with the new synonymes, but not the new ones with the old synonymes. That useful table, moreover, giving the proportions in which opium, mercury, &c. are contained in certain preparations, has been omitted; and these defects have been supplied by none of the translators.

The formulæ for making ammoniated iron, potassio-tartrate of iron, red oxide of mercury, white precipitate of mercury, calomel, corrosive sublimate, and solution of corrosive sublimate, have all been altered. The last-mentioned formula is now without spirit, but contains hydrochlorate of ammonia, which, according to Mr. Brande, will render it less liable to decomposition. (*Manual of Pharmacy*, p. 295.)

The process given for making *Creta præparata* is merely a repetition of the old and objectionable one, and is hardly on a par with the other improvements in pharmaceutical chemistry. We understand that a very pure and much more elegant preparation—a real carbonate of lime, in fact,—is to be met with in some shops. It is obtained by decomposing a solution of muriate of lime by the carbonate of potash or soda.

Mistura. Three new mixtures have been added, the *Mist. Cascarill Comp.*; *Mist. Gentianæ Comp.*; and *Mist. Spiritus Vini Gallici*.

The *Mist. Cornu usti* has been thrown out; the *Mist. Acaciæ* is the old *Mucilago Acaciæ*.

Olea. One oil has been added, the *Oleum Sambuci*.

Pilulæ. Six new pills have been added, namely, the *Pil. Conii Comp.*; *Pil. Hydrargyri Iodidi*; *Pil. Ipecacuanhæ Comp.*; *Pil. Rhei Comp.*; *Pil. Sagapeni Comp.*; and *Pil. Styracis Comp.*

The *Pil. Hydrargyri Submuriatis Comp.* are now called *Pil. Hydrargyri Chloridi Comp.*; and the *Pil. Saponis cum Opio* are now called *Pil. Saponis Comp.*; probably for the sake of concealing the active drug from patients who pry into prescriptions. The *Pil. Styracis Comp.*, which contain opium in the same proportion, will serve the same purpose. The following is Dr. Collier's manner of informing his readers whence this formula is derived: "This they take word for word from the Dublin, as they have, in the course of time, taken every other formula, bit by bit, at the expense of general industry, and then say they, 'Behold our copy-right!'" (P. 195.)

In the formula for the *Pil. Hydr. Chloridi Comp.*, (Plummer's pill,) treacle is directed to be used instead of spirit. In the Pharmacopœia of 1809, copaiba was employed as in Plummer's original form, (*Edin. Med. Essays*, vol. I. p. 59;) but, in that of 1815, it was changed for mucilage of acacia. It is curious that this alteration escaped the observation of Dr. Thomas Young, who says, "The copaiba employed for forming these pills ought to be changed for gum, since it envelopes the substances so much as to lessen their activity. The subcarbonate of iron, made up into pills with copaiba, was given for some weeks without any apparent effect; and a few hours after the same quantity had been given with gum only, the fæces were perfectly black." (*Med. Liter.* p. 474, 2d Edit. 1823.) In 1824, the gum was changed for spirit, and this again was objected to. A correspondent of the Medical Gazette complains of the pills passing through the bowels undissolved, and suggests giving the substances which compose Plummer's pill, in the state of powder. He complains of the copaiba as well as the spirit, and, like others, has overlooked the gum in the Pharmacopœia of 1815. (*Med. Gaz.*, vol. II. p. 110.)

We once knew an instance where refractory pills of this sort, taken by an old gentleman for a chronic disease of the skin, led to the curious mistake of the patient being considered by his apothecary (one of the old school) as affected with *gall-stones*. We found the supposed calculi carefully preserved, literally in boxfuls, and we believe in the very boxes from which they had been originally taken!

The *Pil. Rhei Comp.* are aromatized, not with oil of peppermint as in the Edinburgh Pharmacopœia, but with oil of carraway. This will in some cases superinduce the advantage, or disadvantage, of making a familiar pill strange to the patient.

Pulveres. One new powder has been added, the *Pulv. Jalapæ Comp.*; three old ones have been expunged, namely, the *Pulv. Cornu usti cum Opio*, *Pulv. Contrajervæ Comp.*, and *Pulv. Sennæ Comp.* Let us take this opportunity of mentioning the singular fact, that Dover prescribed his powder in doses of from forty to seventy grains. Dr. Young indeed mentions it, (*Med. Liter.*, 2d Edit. p. 502,) but it is by no means generally known. It is not in chronic rheumatism, as one might have conjectured, but in gout that Dover recommends it; he says, "Dose from forty to sixty or seventy grains in a glass of white wine posset, going to bed. Covering up warm, and drinking a quart or three pints of the posset drink while sweating." (*The ancient Physician's Legacy to his Country*, p. 18-19.) Could the largest of these doses be safely given? And, if so, are we to conclude that the narcotic power of opium is diminished one half by combining it with ipecacuanha, or that opium uncombined may be given in these terrifying doses?

Spiritus. Alcohol is now made by distilling rectified spirits with chloride of calcium (muriate of lime,) instead of subcarbonate (carbonate) of potash. There are no new spirits, nor have any old ones been expunged, but several have been transferred, with great propriety, to the tinctures, as they were made by maceration, not distillation. Strange to say, the list of these changes at the end of the Pharmacopœia contains only two out of four; we will therefore give our readers a complete one.

Old Names.	New Names.
Spir. Ammoniz succinatus,	Tr. Ammoniz Comp.
Spir. Camphoræ,	Tr. Camphoræ.
Spir. Colchici ammoniatus,	Tr. Colchici Comp.
Spir. Lavandulæ Comp.	Tr. Lavandulæ Comp.

The *Tr. Ammon. Comp.* (*Eau de Luce*,) is now made with *Liq. Ammon. fortior*, instead of *Liq. Ammon.*; we must therefore warn our readers to diminish their doses.

Syrupi. The *Syr. simplex* is now called merely *Syrupus*, and the *Syrupus Aurantiorum* is called *Syrupus Aurantii*. The following remarks by Dr. Collier, on the adulteration of *Syrupus Papaveris*, are important, and deserve the attention of all practitioners.

"There is a bad practice in the retail trade (which is well worthy of the serious attention of the profession, and one which ought not to have been disregarded by the College) of selling various substitutes for this syrup. One is prepared with laudanum and treacle; another, with extract of poppies in syrup; and both made of inferior narcotic strength to the preceding. Now, let the dispensing chemist mark the consequence. Numerous fatal cases have occurred in which mothers, who had been in the habit of being supplied with the spurious syrup, have casually applied to houses where the syrup is prepared by the College formula; and, having administered a teaspoonful of this last to their fretful children, or, perhaps, a second, just as they were wont to do with the weaker remedy, it has induced narcosis, and death has ensued in a few hours. The Editor has himself attended inquests of this nature, and he appeals to the Coroners of London, whether a year elapses without similar occurrences. The intention of the dispensing chemist in making a weaker article is praiseworthy; for, knowing that mothers habitually exhibit it to their children, he is afraid to sell them the stronger syrup. Thus the parent is deceived in her estimation of dose, and the deception is fatal. These errors, too, are likely to occur among practitioners themselves; for, if they consult the popular works on pharmacy, they will meet with evidence the most discrepant. By one author an ounce of the syrup is stated to be equivalent to a grain of opium; by another, half an ounce; by another, three drachms; by another, two drachms." (P. 209.)

Tincturæ. The following new tinctures have been added: *Tr. Balsami Tolutani*; *Tr. Colchici*; *Tr. Conii*; *Tr. Cubebæ*; *Tr. Gallæ*; *Tr. Iodinii Comp.*

The *Tr. Cinchona* is now made with the heart-leaved bark, but the *Tr. Cinchona Comp.* is still made with the lance-leaved species.

The *Tr. Cinchona ammoniata* has been omitted, and also the *Tr. Rhei*; the *Tr. Rhei Comp.*, however, has been retained and somewhat altered. The proportion of rhubarb has been slightly diminished, and proof spirit alone is used, without the addition of water. In the *Tr. Camphora Comp.* the oil of aniseed, omitted in the *Pharmacopœiæ* of 1809, 1815, and 1824, has been restored. The *Tr. Digitalis* is rather weaker, as four ounces of the leaves are now used to two Imperial instead of wine pints.

It is remarkable that the Tincture of Opium is directed to be made with proof-spirit in the octavo, and with rectified spirit in the pocket edition. As Mr. Phillips gives proof spirit in his translation, and this is also the direction of the *Pharmacopœiæ* of 1809, 1815, and 1824, we must conclude that the error is in the small edition. Dr. Spillan retains the reading of the small edition. Dr. Collier adopts Mr. Phillips's reading, animadverting, however, on the error of the small edition in his peculiar style. "In the College text they have 'rectificati,' but, when they commit an error, they follow it up with silent dignity." (P. 228.)

Vina. These are now prepared with Sherry.

The *Vinum Aloës* is much weaker, containing one part of aloes to twenty of fluid, instead of one to eight. The *Vinum Colchici* is now prepared with the dried instead of the fresh cormus, and therefore the proportion of the drug has been reduced to one-fifth of the former one. There are now six preparations of colchicum in the *Pharmacopœia*; namely, a watery extract, an acetic extract, a vinegar, two tinctures, (both made with the seeds,) and a wine.

Unguenta. Eight ointments have been added; the *Ung. Antimonii Potassio-Tartratis*; *Ung. Creasoti*; *Ung. Gallæ Comp.*; *Ung. Hydrargyri Iodidi*; *Ung. Hydrargyri Biniodidi*; *Ung. Iodinii Comp.*; *Ung. Plumbi Comp.*; and *Ung. Plumbi Iodidi*.

The first on this list, the Tartar-Emetic ointment, is, we think, stronger than it is generally prescribed, as it contains one part of the salt to four of lard. We believe the usual strength to be one part of tartar emetic to eight of lard, as we find it in the *Pharmacopœia* of St. George's Hospital, (London, 1816.) These, too, were the proportions commonly employed by Jenner. (*On the Influence of Artificial Eruptions*. London, 1822.) He remarks, however, that it is sometimes necessary to make it stronger, and gives the following formula for such cases:—R. Antim Tartrat. (subtil. pulv.) 3ii.; Ung. Cetacei, 3ix.; Sacchari Albi, 3i.; Hydrar. Sph. Rub., gr. v.; M. fiat Unguentum. He says that sugar prevents the ointment from becoming rancid.

"A patient applied the ointment according to the preceding formula, at night, and had eruptions next morning, which was within a space of twelve hours. He had, however, used the same on a preceding occasion, in cold weather, and with a skin less perspirable: in this instance it was much tardier in vesicating." . . . "In the case of a lady, where two parts of tartar emetic and one of simple cerate were used, eruptions appeared in a few hours." (P. 54.)

We once met, in dispensary practice, with a singular case of what Dr. Jenner calls torpor of the skin. A man of about sixty having applied a blister to his chest without effect, we rubbed the potassa fusa on his skin, but it was equally ineffective. We had frequently seen blisters powerless, whether from the badness of the cantharides, from the patient heating the plaster too much, or from the plaster not having been really applied; but this is the only case in which potassa fusa (and it was of excellent quality,) has proved inefficient in our experience.

The *Ung. Creasoti* is intended, as we learn from Dr. Collier and Mr. Phillips, for slight cases of ringworm: and Dr. Spillan says it has been successfully used in the treatment of ulcers and burns.

The *Ung. Gallæ Comp.* differs from the *Ung. Gallæ* of the Edinburgh Pharmacopœia by the addition of opium.

The *Ung. Hydrargyri Iodidi* and *Ung. Hydrargyri Biniodidi* "have been used, chiefly in hospital practice, for ill-conditioned sores which had long resisted the ordinary preparations of mercury, and also for scrofulous ulcers." (*Collier*, p. 240.) They were first introduced for the treatment of syphilis by the French; but the London ointments contain the mercurial salt in the proportion of 1 to 8, while Magendie's have only twenty grains of the iodide or biniodide of mercury to an ounce and a half of lard. (*Formulaire*, 8e Edit. p. 249.)

The *Ung. Iodinii Comp.* is to be used in bronchocele; the *Ung. Plumbi Comp.* for indolent ulcers; and the *Ung. Plumbi Iodidi*, say the traustralators, is employed in chronic enlargements of the joints, and other scrofulous tumours.

Oil of Bergamot has been added both to the simple and the compound sulphur ointment.

Such are the more prominent points of difference between the late and the present Pharmacopœia. We have given them with a minuteness which will perhaps to some appear superfluous. But the collation which we have gone through is what few, even with the new and old publications in their hands, would take the trouble of making; and we trust, therefore, rather to receive thanks for our industry, than a rebuke for our minuteness.

ART. VIII.

System der Physiatrik, oder der Hippokratischen Medicin. Von FERDINAND JAHN. *Erster Band. Physiologie der Krankheit und des Heilungsprocesses, oder allgemeine Pathologie und Jatreusiologie.*—Eisenach, 1836. 8vo. pp. 582.

A System of Physiatics, or of Hippocratic Medicine. By FERDINAND JAHN. *First Volume. Physiology of Disease and Restoration, or General Pathology and Jatreusiology.*—Eisenach, 1835. 8vo.

IN our last Number, in noticing the works of Professor Mayer and Dr. Mühry, we took occasion to remark briefly, but with some severity, on one or two of those deviations from the path of sound reason and philosophy to which, we are sorry to say, the physicians and physiologists of Germany are so prone. On the present occasion we purpose to lay

our readers, at considerably greater length, an account of a new system of Pathology which has lately been promulgated in that country, which is said to have attracted many admirers, and not a few converts among the younger members of the medical profession.

For some of our readers it may, perhaps, appear scarcely necessary to devote so much of our space to a work like the present; more particularly after seeing the judgment which a careful analysis may lead us to pronounce upon it. But, setting aside the amusement which we think an account of Dr. Jahn's book cannot fail to yield to many; as we feel it our duty to make our readers acquainted with every novelty of importance in medical science, whether of fact or opinion, we could not pass, with a mere passing notice, a publication which is the production of a man of undoubted learning and great talents, and which claims to be considered as the Koran of a new creed in the world of medicine. We are moreover, well pleased to let our friends in Germany see that, while they can nowhere count on more cordial or sincerer admirers than ourselves, so long as they present us with works of sterling merit, they must expect that productions like that now before us, which, under the name of philosophy, set all true philosophy at defiance, can ever find favour in our sight.

It is a singular feature in the German character, that the same minds which are capable of undergoing the greatest drudgery for acquiring the knowledge of facts should be prone to indulge in the most extravagant theories and most baseless speculations. Hence it is quite as frequently the writings of the old as of the young, in the speculations of men of undoubted learning as in those of the novice and pretender, that we are most aptly startled with the sudden intrusion of the most fantastic and many forms, altogether at variance, as we conceive, with the character of the author and the book. In this respect the follies of the Germans are unlike those of many other people: they are grave, learned, and elaborate, yet still follies. We have also our fools, and some who write wisely; but, however we may be led to laugh at their folly, we are never undeceived by their learning.

The author of the work before us is evidently a very remarkable man. He answers but little to our idea of a modern physician, and would have been more at home, one would think, wandering over Europe by the side of the "god-like" Paracelsus, whom he is so fond of quoting, than confined in the little duchy of Meiningen, which, to such a restless spirit, is but little better than a prison. There is mystery in his book, but it is a sacred, and not of a vulgar description. Though his system may be extravagant, he is evidently deeply in earnest, and therefore entitled to our respect; and his talents, however we may lament their application, are well calculated to arrest the attention of the readers of his works, in other countries as well as his own. Being of the school of Paracelsus, Dr. Jahn, of course, neglects the boundaries by which former philosophers divided science from science, and walks along, careless of medical prescription, holding high commune with universal nature. His diction bears a stamp of religious solemnity, as if he had just left the presence of some mysterious power. We can really hardly imagine that he plays a simple part in that simplest of all dramas, German domestic life. He tells us that he has declined several offers of promo-

tion to professorships in different universities. We do not wonder at it. No formally prescribed line of duty can possibly suit an individual who, it would almost appear, lays claim to inspiration. We can imagine him teaching at a porch, or healing by the wayside, or musing in solitude; but, with circumstances of a more modern state, or commoner kind, we find it impossible to invest him. Before we recount them, we must say something to our readers in extenuation of our author's extravagancies. His theories look quite different things in their German to what they will do in our English dress. We know not what is the reason of the fact, but it is one, that, in the country beyond the Rhine, many beautiful theories enjoy the sunny life of popular favour, which would scarcely survive their birth in our island. Translators have long discovered this truth; and we ourselves must confess that, in our German travels, we have often fallen in love with beautiful ideas, which we would fain have transplanted to British ground, but they would never have borne the change. Our intellectual climate is too severe for the fruits of German speculation.

Another work, or what may be regarded as the second volume of the present, has since appeared, written on subjects of a practical nature. This we shall notice hereafter; and, if our readers can believe, firstly, that the result of Dr. Jahn's treatment has been so successful as he states, and, secondly, that his practice is, as he says, founded on the principles detailed in the present volume, they may feel disposed to regard his theories with an eye of greater favour than they might seem entitled to for their own sake. He says, that, in the year 1831, of 293 cases treated in his hospital, where no trifling ones are admitted, he did not lose one; in 1832, out of 531, he only lost six,—viz. two from phthisis, one from dropsy and phthisis, one from a tumour in the cavity of the thorax, and one from catalepsy; in 1833, out of 533 cases, he only lost five! We may mention that this practical work is now to be obtained with difficulty, having been forcibly suppressed by the government, on account of certain observations, thought too bold, made in it respecting the condition of the peasantry and the state of society in the author's little state.

Dr. Jahn's pathology is based upon the physiological position that man is a kind of *recapitulation* of the animal kingdom,—i. e. that all the powers and functions of animal life are found in man, each in a degree of development consistent with the greatest possible perfection of the whole. Parts of the animal system may be more completely developed in the lower animals, but the whole is only perfect in man. Thus, the lymphatic system is more complete in certain fish than in the human economy, in which its development is impeded by the operation of more important systems. Each of these systems is capable of unlimited development; each strives to become predominant, and each is only kept in healthy limits by the counteracting influence of the rest. Now disease, according to Dr. Jahn, is the anormal predominance of one of the systems of animal life. When the arterial system develops itself to a degree of predominance inconsistent with the harmony of the whole organism, the result is inflammatory fever. A similar state of the venous system is manifested by venous congestion, and of the lymphatic, by scrofula. Seeing that, in these diseases, certain systems strive to become predominant, and usurp a disproportionate share of the vital powers, the conse-

quent disease must represent the vital process of that class of animals in which such system is normally predominant. The carrying out of this position is the subject-matter of the book before us. The process of inflammation is declared to be that state, abnormal in the human subject which is normal in the bird; scrofula is compared to the life of a fish, &c. &c.

It is not attempted by Dr. Jahn to prove the actual identity of diseases with the analogous normal conditions of animals; but this has been maintained by Dr. Carl Hoffmann, whose work has appeared since the publication of the *Physiatrik*. This conclusion of identification is one, however, to which there is no reason for asserting that our author has not arrived, though he generally contents himself with the more modest process of parallelizing.

In the following pages our object is, in the first place, to develop as much of our author's system as our limits will allow us; and, in order that our readers may have it presented to them as pure and as complete as possible, we shall reserve our criticism on it until the close of the article.

Every organism, says Dr. Jahn, has two bearings, an universal and an individual; *universal*, inasmuch as it proceeds from the great whole of nature, and tends inevitably to return to it again; *individual*, inasmuch as it strives, at the same time, to attain as high a degree of individuality as possible, and to form of itself an independent whole.

In the animal organism there are two grand systems: the *reproductive* or *vegetative*, and the *sensitive*. There are three processes of the former system which correspond to its *individual* direction,—i. e. which tend to make it a whole of itself, and remove it from the operation of the laws of universal nature: these three processes are, 1, the formation of lymph; 2, the formation and circulation of red blood; and 3, the conversion of red blood into animal fibre. There are also three processes which correspond to its *universal* direction,—i. e. which express its inevitable tendency to return to the whole from which it originally sprung, viz. 1, the interstitial absorption of animal tissue; 2, the conversion of arterial into venous blood; 3, the conversion of venous blood into excretory products. The character of the former direction of the vegetative system may be expressed by the words *ingestion* and *concrecence*; of the latter, by *liquecence* and *egestion*.

In the sensitive system, these conflicting directions are manifested by the states of action or tension, and of repose or relaxation. In the former conditions, the animal organism stands out as something separate and individual; in the latter, it manifests a tendency to merge in surrounding nature. The processes which correspond to the *individual* direction of the sensitive system are the following:—1. Action of the nerves of motion; 2. Perception by the nerves of sense and of sensation; 3. Perception by the ganglionic system; 4. Instinctive desire; 5. Action of the reasoning powers; and 6. Action of the will. The states which indicate the *universal* direction of the sensitive system are those in which the above actions, or processes, are succeeded by intervals of repose, in which the sensitive powers are in a state of abeyance.

Health consists in the harmonious counteraction of one of these directions by the other, and disease may be caused by excess in either.

Whenever a vital process which corresponds to the individual direction of the organism is developed to such an extent that, instead of being a part of a whole, it has become a whole of itself, the harmony of the system is irreparably disturbed, and death is the consequence. The same result occurs whenever the universal direction predominates at the expense of the individual.

The proper classification of diseases therefore must, according to Dr. Jahn, correspond to the vital processes which we have enumerated. We commence with the vegetative system, and with the formation of lymph, its first process, of which the anormal development constitutes *scrofula*. In this disease the lymphatic system endeavours to establish itself independently, and to become predominant in the general organism, trying, as it were, to subvert the law by virtue of which it is a part of a whole. It resists the conversion of its lymph into arterial blood. Hence hypertrophy, swelling, and congestion of the lymphatic vessels; the whole of which, instead of being subordinate, begin to be governed by their own laws, to establish their own centres, and to resist foreign influence. In the degree that this system is predominantly developed, the other vital processes, and particularly those of arterialization and nutrition, to which it is its principal province to minister, are of course diminished. In short, the life of the whole organism, which only flourishes in the degree in which harmony prevails amongst the systems which compose it, is prostrate.

The next process of vegetative life is the formation and circulation of arterial blood, which, when anormally developed, constitutes arterial plethora, simple fever, synocha, &c. In these affections the red blood becomes the most prominent agent in the system, and its tenacity in retaining its characteristic qualities indicates its tendency to independence. The pulse is full and strong, the complexion redder, the temperature higher, the blood drawn from the veins is of a deep red colour, and coagulates quickly and firmly. The heart and larger vessels are more developed, and actually increase in size. (Schoenlein.) In proportion to the morbid extent of the process of arterialization is the state of depression of the other processes of vegetative and sensitive life. Muscular and nervous activity are prostrate, the sphere of mental operation diminished; reproduction, excretion, and secretion arrested altogether, or imperfectly executed. Inflammation of a viscus, or of any part of the system, is local excess of arterial life. In the organ affected, the globules of blood resist the metamorphosis into the ordinary molecular elements of animal tissue, and are incorporated with the latter without undergoing any essential change, so as to give it the red appearance which is characteristic of inflammation. They are equally obstinate in resisting conversion into secretory and excretory products. Thus, the general organism is no longer united and harmonious; a kind of *status in statu* arises, and the arterial system, instead of being subservient, as formerly, becomes independent, and consequently diseased. When the inflamed vessels succeed in withdrawing themselves from the operation of the laws by which the system at large is governed, either suppuration or gangrene is the consequence. The former is a reduction of the part into elements of lower vitality, of an infusorial nature, (Treviranus;) the latter into its chemical constituents.

The third process of the vegetative system is the formation of animal tissue from the globules of the blood. This process, when anormally developed, constitutes hypertrophy. Its converse, atrophy, is caused by excess of interstitial absorption. When the fifth process of vegetative life is developed to too great an extent, we have venous congestion. Here the veins display the same tendencies as the arteries in arterial plethora. The venous system usurps the greater part of the vital powers, and debilitates, in consequence, the functions of other parts of the body. The blood which it contains no longer complies with the law of the system, by virtue of which it ought to be converted (in the liver, for instance,) into excretory products, but remains in its original condition in the portal veins. The general congestion prevents the interstitial absorption, of which the veins are the principal agents, from properly taking place. Finally, the latter engross a disproportionate quantity of blood, so that the arteries suffer a defect both in the quality and quantity of their contents. Typhus indicates a state of the venous system similar to that of the arterial in synocha. Profuse excretions are caused by the excess of the sixth process of the vegetative system.

We now come to the processes of the *sensitive system*. When the first of these which we have enumerated,—viz. the action of the nerves of motion,—withdraws itself from the operation of the laws of the general organism, and is called into independent play, convulsions are the consequence. As in local inflammation, the vessels affected are no longer under the control of the heart, or of the laws which govern the arterial system generally; so, in convulsions, the state of the nerves affected is similar with regard to the nervous centres. An anormal degree of perception of the nerves of sense and of sensation is denominated *algia*. When a similar state obtains in the ganglionic system, singular phenomena are the result. Their aggregate is usually denominated *somnambulism* or *mesmerism*. In the normal state of the human subject, perception by the ganglionic system, which is so developed in lower animals, is superseded by the cerebral functions. But, in the anormal condition of which we are speaking, its exercise would appear, even in the human subject, to predominate over the latter; for, during *somnambulism*, the intellectual faculties, and the higher powers of life, are temporarily suppressed. In their place, we observe the instinctive apprehension, presentiment, and foreknowledge, which we are accustomed to admire in lower animals, particularly in insects. "In the same way that the queen-bee clearly perceives the gender of the young which she still carries in her womb, and acts accordingly as to the size and construction of the cell to which she is to consign it;—in the same way that the working bees anticipate the wants of the brood which is yet unborn, and that instinct, generally, whether exercised for the progeny of animals or for their own preservation, overlooks both time and space,—so are human beings, in whom perception by the ganglionic system is anormally developed, capable of perceiving the internal condition of their own or of other bodies, of discerning whatever has relation to themselves, and of extending their mental vision to a distant time or place."*

Instinctive desire is also liable to the excess which we have described

* Schubert.

in the other functions, as constituting their respective diseases. Hence *satyriasis*, *nymphomania*, *polyphagia*, &c.

That state of the reasoning powers in which they have lost their healthy relation to the general organism,—their normal connexion with the organs of sense, the will, the impulses, and voluntary motion,—is denominated *madness*. Mania is caused by an independent and predominant action of the will, which is thus removed from the influence of the reasoning powers, and appears to be exercised for its own gratification. Of course, a contrary condition of these several functions may make its appearance; such a state constitutes paralysis of the nerves of motion, and anæsthesia of those of sensation.

Such is our author's classification of diseases. The following is the account he gives of their nature and bearings.

The vital processes which we have enumerated are more or less common to the whole range of organized beings. Some are more prominent in one class, and some in another. Man, who is at the head of the animal creation, presents them in the greatest degree of aggregate perfection. Now, when one of these processes is anormally developed in the human organism, the phenomena to which this anormal development gives rise must necessarily resemble the healthy functions of the lower organism in which such process is naturally predominant. This doctrine is alluded to in Plato, and has been adopted for the explanation of mental diseases by Nasse, of malformations by Meckel, and of other affections by Carus, Oken, &c. In pursuing this analogy, we shall follow, of course, the classification of diseases which we have adopted above.

The general condition induced by scrofula presents numerous points of similarity with the healthy organization of cartilaginous fish, in which the lymphatic and mucous systems naturally predominate. In these animals, as in the disease under consideration, the blood contains little fibrine; the muscles and bones are imperfectly developed, the former being pale, the latter more or less cartilaginous; the cavity of the *thorax* is contracted; the organs of respiration retarded in their growth; the abdomen, intestines, and liver, on the contrary, of considerable size. *Gluttony is equally characteristic of the disease and of the animal!* Other points of analogy are supplied by the paleness of the blood of scrofulous subjects, and by the varicose dilatations of their lymphatic vessels.

In respect of predominant arterialization, the anormal phenomena which synocha produces in the human subject are strikingly analogous to those presented by ravenous animals in a healthy state. (Stark.) Witness the full, strong, and rapid pulse; the reddened, fiery, shining, and wild-looking eye; the red and rough tongue; the limited secretion of urine, its high colour, strong odour, and acidity; the hard and dry *fæces*; the hot and rapid breath; the increased temperature of the blood; the extraordinary muscular power; the great restlessness; and even the *delirium furiosum*. In inflammation, the human subject displays the blood-heat and intensity of respiration of a bird of prey. (Kieser.) Even the common consequences of inflammation,—the adhesion of serous membranes with contiguous parts, &c.—are normal conditions in several animals!

The hypertrophy, which is morbid in the human subject, is natural in

some lower organization. Enlarged liver has its prototype in the Molluscae; enlarged salivary glands, in the Ruminantia; the hypertrophied heart, in the bird; aneurism, in different fish; of the aorta, for instance, in the dolphin, sea-dog, &c. (Meckel, Carus, Albers, &c.); sacculous distention of the œsophagus, in numerous birds; hypertrophied muscular coat of the stomach, in the horse; and distended stomach, in the leech. Local depositions of fat, which constitute diseases in the human subject, are normal in the camel. Emphysema is presented by numerous lower animals in their healthy condition, (Carus,) &c. &c.

Predominant vitality of the venous system is a normal state in living and hibernating animals. During the sleep of the latter, respiration is very imperfect, and the blood of the veins and arteries nearly similar in colour and quality. Venous vitality is prominent in fish, to whose healthy constitution the state of the human subject in chlorosis is strictly analogous. Witness, in both cases, the thin, pale, and watery blood; the laborious respiration, the diminished temperature; the infiltration of the cellular tissue with yellowish, tenacious, half-coagulated matter; the inflated appearance of the body, &c. &c. Morbid products, which owe their origin to venous congestion, and amongst which are to be classed the greater part of the urinary calculi, have their prototypes in numerous animals. In the hog, we find ossification of the substance of the heart; in the tortoise, there are small bones between the arteries rising from it; and in the sturgeon, ossification of the aorta, &c. &c.

We now pass to the diseases corresponding to the functions of the *sensitive system*.

Convulsions may be compared to healthy movements of a similar kind, which we observe in several lower animals. Anormal sensibility has also its prototype in inferior organization. Of excessive perception by the ganglionic system, we have already sufficiently spoken. Predominance of instinctive desire is identified, even by the vulgar, with the propensities of lower animals. In the different forms of madness, the human being betrays moral qualities which bear a greater or less similarity to those characteristic of different animals. In mania, and in the natural constitution of carnivorous animals, there are alike observable increased muscular power, perpetual restlessness, nocturnal excitement, violent agitation, a glaring eye, and destructive propensities. Elephants and similar animals, in their thoughtful manner, tenacious attachments, obstinate antipathies, and in their disposition to indulge in revenge, manifest many of the qualities which characterize the human melancholic. The imbecile resembles the ruminating species in the obtuseness and stupidity of his nature, and in the trifling extent of his intellectual powers. Almost all our moral diseases find their normal prototypes in inferior organizations. The propensity to murder, thief, and destroy is implanted in numerous animals. In others we find a natural melancholy, a shyness of their fellows, and an intolerance of all intrusion; in others, again, the greatest restlessness and irritability; and, finally, in some qualities which are comparable to those of an impertinent fool!

As to the converse states of the sensitive functions,—i.e. those in which their activity is diminished, instead of increased,—it is unnecessary for us to pursue an analogy with lower organizations, which must present itself at once to every mind. In descending the scale of organized

beings, we find the sensitive system become more and more defective, till it finally ceases in the vegetable kingdom.

But all diseases are not confined to processes which find their prototype in a lower animal organization: there are numerous affections of the human subject which are to be compared with phenomena of the vegetable, and even of the mineral kingdom. In diabetes, we have the production of saccharine matter, so richly supplied by numerous plants. Concretions of phosphate of lime are found in several vegetables. Benzoic acid, which is common in the vegetable kingdom, is often secreted in diseases of the kidneys. Collections of air, termed emphysema in the human subject, are frequently met with in vegetable structures. In many plants, dropsy is a healthy condition. (Andrews.) Frank has already compared lymphatic and coagulable transpirations in the human subject with the gummy secretions of trees in a fertile soil. The section of a carcinomatous excrescence bears a remarkable resemblance to that of a vegetable, and its manner of growth is similar. Stark describes a wart as being strictly analogous to a plant, &c.

Examples of *chemical* processes taking place in an animal organism are furnished by the formation of stony substances, by the morbid elimination and combination of combustible gasses, by the anormal play of electrical agents, by melanosis, &c.

Inasmuch as the disease of one organization is constituted by its assuming the character of another, it is possible, continues our author, for the human female, who, according to the latest researches, is an imperfectly developed male, (Walther, Wagner, and Tiedeman,) to simulate, in a diseased state, the constitution of the latter. That the male may fall back to a more or less feminine organization results from the preceding observations; and facts are not wanting to warrant the conclusion,—e.g. the *morbus mulieris*, whose home was formerly the ancient Scythia, but which has lately been found in other regions, (Larrey;) the gradual disappearance of the male organs of generation, and the secretion of milk by males; a phenomenon of frequent occurrence amongst the Mongolians and South American tribes.

Notwithstanding all that has been stated, inasmuch as the morbid process which constitutes disease is still necessarily, more or less, under the influence of the general laws of the organism, it follows that its products can obtain but a very imperfect degree of organization. Hence all excrescences and pseudo-formations resemble the lowest animal and vegetable forms. Should they simulate the higher, it is in an extremely imperfect and fantastic manner. Their origin resembles that of the lowest organized beings: they first exist as simple, homogeneous, formative tissue; subsequently, this divides into globular portions, the peripheries of which coagulate, and form coverings for the centres, which either remain more or less fluid, or undergo an organic crystallization. This is the way in which hydatids and tubercles are produced. Should traces of a sanguineous system be discovered in these morbid organizations, they will never be found to advance further than the first rudiments of vascularity. The hair, teeth, and bones sometimes found in membranous sacs, are instances of the imperfect and fantastic imitations of higher organization mentioned above. Even the morbid products which display the most perfect organization and most complete individuality,

merely simulate the character and type of the lowest animals and plants; the *entozoa* correspond either to *infusoria*, *polypi* or *annularia*, and the vegetable formation to the most imperfect plants. It is a law of animal and vegetable organisms of a low grade, that, at an advanced age, they soften and melt. This obtains of sponges *medusæ* and various *fungi*. Morbid organizations are also harder at an early than at a late period of their existence, and are destroyed by softening down at their centre, and by a gradual conversion into fluid matter, &c.

We pass to the consideration of the different types which diseases assume.

Every vital process may be said to intermit, to be made up of impulses and pauses, and to oscillate between action and repose, between tension and relaxation. The same intermittent tendency is observed throughout the operations of nature. In the animal organism, this intermittence is expressed by the states of action and of repose, of sleep, and of wakefulness. Moreover, it is not only manifested by the system, taken collectively, but by each of the functions which compose it. Now, as disease is nothing but an immoderate development of a process of the healthy organism, it is plain that the type which it assumes must correspond, more or less, to that of the latter.

The period and extent of intermission are alike various in the vitality of lower animals and in the diseases of the human subject. Fish never sleep; several vegetables are perfectly alive in winter; and some of the hibernating tribes are much more apathetic during that season than others. Again, the vitality of the organs of sense intermits much more distinctly than that of the secreting organs, the cellular tissue, &c. Thus, also, there are diseases which appear entirely to cease for a day or more, and others which continue their career with an almost imperceptible intermission. That some are without a type,—i. e. without certain intervals of diminished intensity,—may be a doctrine of the schools, but is not a pathological truth. The period to which intermission of vital action may extend in different animals is extremely various. Some of the hibernating tribes sleep two, and some six months, in winter; the natural sleep of some animals only lasts two hours, that of others twelve. In like manner, fits of hooping-cough occur at intervals of an hour or more; of intermittent fever, at an interval of one or more days; whilst months intervene between the regular exacerbations of syphilis and dropsy, &c.

Our author next considers the stages into which the course of a disease is to be divided.

All life (he says,) is a process of development; no organization manifests the same perfection, no vital power the same intensity, at the commencement and at the termination of its existence. Life gradually attains a culminating point at which it cannot remain, but whence it must gradually descend. Thus it has a period of evolution, or of development and growth, of culmination or of perfection, and of involution or of descent and decay. Man, to use the words of Reil, commences as a bright point, becomes a sun which governs the world, and finishes as a spark in the waste of night. Now, inasmuch as every disease is a vital process, tending to establish, or actually establishing, a separate organization, (*status in statu*.) it must necessarily go through the stages which are

common to every organism. We shall find, too, other analogies between diseases and vital processes, besides the mere fact of their both running through certain periods of development and decay. Many organic beings undergo metamorphoses during their different stages. In the same way, diseases undergo organic metamorphoses; so that, in an advanced stage, they may become quite dissimilar to what they were in a former. Syphilis passes in its career through all kinds of forms; leprosy quite changes its appearance as it proceeds; tubercles undergo a complete transformation.

In the same way that beans will germinate after a lapse of two hundred years, and onions after two thousand, that the spawn of fish and the eggs of many insects may lie for a long period without manifesting a trace of vitality, so can the germs of numerous diseases remain latent for years.

Again, there are parasitical diseases corresponding to parasitical animals and plants. Hospital gangrene, many forms of chronic dropsy, petechiæ, &c., are, as it were, parasitically inoculated upon other diseases, in the same way that numerous fungi, sponges, mosses, and worms, live exclusively at the expense of a foreign organization.

Some plants act prejudicially, and some beneficially, upon the growth and health of others. The *ervum hirsutum* and *ranunculus arvensis* only flourish amongst corn. On the other hand, oats never prosper in the neighbourhood of the *serratula arvensis*; nor wheat in that of *erigeron acre*; not hemp near the *euphorbia peplus*. In like manner, syphilis increases in intensity when prevailing in a subject afflicted at the same time with scrofula, scurvy, or the itch. On the other hand, the cow-pox and variola counteract each other, and the same antagonistic relation obtains between some other diseases.

Numerous animal and vegetable organisms alter their general character in changing climate or country. Our *athusa cynapium* loses its disagreeable odour when transplanted to America. Change of climate converts trees into bushes, annual plants into perennial, &c. The same fish may present a different colour and shape in different parts of the ocean. In Corsica, animals are chiefly speckled and party-coloured; in Syria, almost all animals have long white hair; in Cubagua, pigs degenerate into a species with claws half a span long; in Lapland, the dog is small and ugly; in the south, handsome and well made. The human form is equally subject to the influence of climate. Diseases, too, assume different forms in different countries. Syphilis is not the same in Scotland as in Egypt, in Peru as in North Asia, in Scandinavia as in Italy. The same obtains of the itch, to which physicians have given a new name in every new climate in which they have met with it.

There are substances which act specifically upon certain organisms. Camphor is poisonous to insects, pepper to fowls, and quassia to flies. Buttermilk produces a fatal colic in the horse, an animal which can swallow pounds of belladonna with impunity. Diseases also have their poisons, their specifics. Amongst these are to be reckoned mercury for syphilis, sulphur for the itch, bark for the ague, &c.

The phenomena which accompany the abortion of the animal embryo are the same which are induced in order to stifle the germs of disease. The former may be brought about by emetics or purgatives, which produce a shock throughout the frame of the mother, or by emmenagogues,

which stimulate to greater secretion the organ where the fœtus is developed. The same emetics and purgatives frequently annihilate the germs of disease, &c.

All organisms have their origin in generation: to this rule there are no exceptions; and it must, therefore, hold good of diseases, which are morbid organisms, whether they are produced by contagion, or whether they arise spontaneously. In the latter case, the external deleterious agents represent the male principle, the actions of the recipient matter, the female; the common product is the disease!

In every process of generation, the constitution of the matrix influences, to a great extent, the character of the product. The operation of the same external agents does not produce the same kind of infusoria in mucus as in pus, (Gruithuisen;) animal matter in the first stage of its decomposition is resolved into large, later into small, infusoria, (Treviranus;) the infusoria furnished by an infusion of bruised seeds are smaller and shorter lived than those of an infusion of unbruised, (Spallanzani;) *entozoa* differ in form and construction according to the manner of life, age, and part, of the individual in whom they are developed. Diseases, also, vary according to the state of the subject in whom they are produced, the matrix in which they are engendered. Those of plants differ from those of the lower animals; those of man from both; and the latter are diverse according to the peculiarities of the individual, or the part of the system, affected.

But, in the generation of infusoria, the qualities of the external agents, as well as those of the matrix, affect the nature of the product. Their form and structure varying according to the intensity of light, shade, heat, &c. to which the matrix is submitted, according to the shape of the glasses in which it is contained, to the nature of the air by which it is surrounded, &c. The same obtains of external agents engendering disease. The air of a prison and a cold north-east wind produce different diseases in the same individual. The operation of every poison is peculiar to, and therefore characteristic of, itself.

In the same way that only lower animal and vegetable organisms originate in spontaneous generation, and that all higher ones are produced by the development of seed, so it is only the more imperfect diseases which are spontaneous, whilst all the better marked and independent ones, such as, small-pox, the plague, syphilis, &c. are engendered by contagious matter; &c. &c.

But here our limits compel us to take leave of Dr. Jahn, and of his endless series of analogies. We have given, however, quite sufficient to shew the spirit in which his singular book is written; and more than enough, we suspect, to satisfy the curiosity of most of our readers. In taking leave of it, we will only say that, although Dr. Jahn and some of his countrymen may probably set it down to some peculiar obtuseness of comprehension on our part, we must here confess our want of admiration for the ingenious analogies of which it is for the most part made up. Without saying that we regard such ingenuities with contempt, we certainly look upon their construction as a waste of time, and a misapplication of faculties given for better purposes. Excusable in a very young man, prone to acknowledge resemblances, they shame maturer age, when the attention should embrace a wider range of qualities, and discern

differences. The exercised reason should, we think, eschew the loose similitudes whereupon our German friend bases his assertion, that an enlarged liver has its prototype in the molluscous animals. It betokens, in our opinion, a most incomplete and unphilosophical consideration of the peculiar endowments of woman to libel the human female (and her Maker,) by proclaiming her an imperfectly developed male. There is nothing logical or satisfactory in the assertion that, because diseases are organisms, and organisms are only produced by generation, therefore diseases are produced by generation; and therefore external agents are the male principle, the recipient matter the female, and the disease the veritable child. Even the facts adduced in support of Jahn's analogies are often doubtful; and of the theory—it is surely “of imagination all compact.” We may even add, that his views have not the merit of novelty or invention, being little more than cast-off follies dressed up in the finery of new phrases; and, as it were, a remodelling of “the ancient opinion” alluded to by Bacon, “that man was *microcosmus*, an abstract or model of the world,” and which he speaks of as having been “fantastically strained by Paracelsus and the alchemists, as if there were to be found in man's body certain correspondences and parallels, which should have respect to all varieties of things, as stars, planets, minerals, which are extant in the great world.” This manifest foreknowledge of Jahn's darling theory may, perhaps, not without advantage, induce him to look into the chapter of the great philosopher wherein he speaks of the Three Dis-temperers of Learning, whereof, we regret to say, certain physiologists and certain botanists in the present day are grievously affected with at least one; “fantastical learning, or vain imaginations.”

ART. VIII.

Lectures illustrative of certain Local Nervous Affections. By SIR BENJAMIN C. BRODIE, Bart., F.R.S., Serjeant Surgeon to the King, and Surgeon to St. George's Hospital.—London, 1837. 8vo. pp. 88.

NOTHING is more true than that there is a great deal of practical knowledge, which experience only teaches, which systems of medicine and surgery do not comprehend, and which is only to be communicated by commentaries on certain orders of symptoms, “which, while they have many characters in common, may arise from various causes, and require very different modes of treatment for their relief.” It is for the purpose of communicating knowledge of this kind that Sir B. Brodie publishes these lectures, which are full of practical information, and cannot but be gratefully received from so eminent a surgeon by the profession at large.

The first words of Sir Benjamin's first lecture will, we imagine, remind many a practitioner of the troubles of those undefinable and intractable cases which few can have been so fortunate as not to meet with, and one of the griefs of which has been “a constant and severe pain referred to a spot, about three or four inches in diameter, in the situation of the false ribs of the left side.” It may be instructive, or at least consolatory, to know, that in this particular case, the subject of which was hysterical, examination after death detected no morbid appearances in the affected

part; a fact which will perhaps be admitted as a sufficient explanation why the repeated application of leeches, very diligent blistering, and other ingenious local measures so often fail to give relief.

In cases like these, observes Sir B. Brodie, the nerves of sensation, as in others the nerves of motion, are morbidly affected; in the one case pain, and in the other spasm, or total loss of power, is the effect; and the question for the practitioner to solve is, where does the irritation of the nerve commence? The instance of a man is mentioned who complained of severe pain in the inside of his knee, which was relieved when the femoral artery was tied for the cure of an aneurism in the thigh, some branches of the crural nerve passing over the aneurismal tumour, and kept on the stretch by it, terminating in the part to which the pain had been referred. In disease of the hip, the surgeon well knows how often pain is referred to the knee; and the physician often meets with very acute pains affecting the legs in cases of phthisis, in which the nervous irritation seems at first sight remote from any presumable cause. Such pains are not always to be explained by the common origin of affected nerves, any more than the pain in the right shoulder so commonly attending disease of the liver, or the pain in the back in some cases of disease of the heart. Acid in the stomach has not unfrequently been accused of exciting pains in the legs and feet. A pint of claret ensures the gout to some offenders in a few hours; and we have met with individuals in whom the cool refreshment of hock in summer could not be enjoyed without the disadvantage of many wandering pains the following day. Sir Benjamin quotes a case from Dr. Denmark, in the *Medico-Chirurgical Transactions*, of a sailor who "received a wound from a musket ball in the arm: the wound healed, but the patient complained of an agonising pain, beginning in the extremity of the thumb and fingers (except the little one), and extending up the forearm. His sufferings were such that he willingly submitted to the amputation of the limb, and the operation gave him complete relief. On dissecting the amputated limb, a small portion of lead, which seemed to have been detached from the ball when it had struck against the bone, was found imbedded in the fibres of the median nerve." (P. 6.)

Similar effects, it is observed, are produced where the actual seat of the disease is in the brain or the spinal marrow. Of this instances must, we think, often have been remarked in cases of paralysis, as well as in epilepsy; and they have also been witnessed, without being understood, in cases pronounced to be either anomalous or feigned; particularly where the seat of the pain was occasionally shifted. In cases of an analogous kind, neuralgic pains alternate with insanity.

Among the examples given by Sir B. Brodie of pains arising from some distant local irritation, is a remarkable one (p. 12,) of pain in the foot produced by stricture of the urethra, and relieved by the use of a bougie. We believe that Dr. Sanders of Edinburgh ascribed many cases of gout to the same cause, and, in his lectures, held them to be curable in the same way. Sir Benjamin mentions another case, in which the pain of the ankle and toes was connected with hemorrhoids, and cured by lavements of cold water and the use of Ward's paste (*confectio piperis composita*) taken three times daily, and lenitive electuary at bed-time.

"Now, in such cases as these, you will at once perceive that there is no direct com-

munication between the nerves of the parts affected that will afford a reasonable explanation of the occurrence of the sympathetic pain; and you will naturally enquire, how then is the sympathetic pain produced? To this question I would answer, that in all probability it is in the brain itself that the communication is made, the impression being first transmitted to the sensorium, and from thence reflected to the nerves of the part which is secondarily affected. If you dissect the brain according to Reil's method, having first hardened it by maceration in alcohol, you will find it splitting into fibres, passing in various directions, many of which may be demonstrated as connecting even the most distant convolutions of the cerebrum with each other; and if, with the limited knowledge which we at present possess, we venture to speculate on this obscure but interesting subject, we may easily be led to suppose that an impression on one part of the body should, by means of these communicating fibres, produce a disordered sensation in another part. It is not more improbable that this should happen than it is that the whole fabric of the nervous system should sympathize with an affection of a particular nerve, as is the case in traumatic tetanus, and on many other occasions of which the experience of surgeons will furnish numerous instances." (P. 14.)

A remarkable feature of these affections, it is observed, is that they seem to be suspended during sleep; not only nervous pains, but nervous spasms. They have also marked intermissions and exacerbations, to which the name of spasm is sometimes erroneously applied even to characterize the pains. The nervous pains are to be distinguished, Sir Benjamin Brodie says, from those produced by inflammation "by the absence of throbbing, by their not being increased by pressure, by there being no evident turgescence of the small vessels;" but he acknowledges that there is much difficulty in the diagnosis when the affection has lasted some time; that increased vascularity may follow, and swelling, and actual inflammation. Where the intermissions are as regular as those of an ague, the quinine gives no less relief than in ague. In other cases the pain may depend on disorder of the bowels or on actual disease of the brain, without any particular difference being observable in the symptoms. The following passages comprehend some important remarks on the forms of such affections, or the parts they most commonly appear in.

"Although there is no part of the body which may not, at one time or another, be the seat of these nervous affections, it would appear that some parts are more liable to them than others. They are met with less frequently in the viscera, which are supplied by the great sympathetic nerves, than in other parts. Nervous pains are more severe, and perhaps, on the whole, more common, in those parts which receive their nerves from the fifth pair, as the face, the eye, the tongue, than in any other individual part. Muscular spasms are common in the muscles of the neck, especially in the sterno-cleido-mastoideus. I am inclined to believe, also, that they occur more frequently in the upper limb than in the lower. It is not uncommon to see one hand and arm in a state of constant tremulous motion, there being no other indication of disease. I have seen several cases in which a muscular spasm of the upper limb has shown itself in the following manner. The patient experiences no inconvenience from it until he uses the limb; for example, until he sits down to write. Then, when he has gone so far as to have written a few letters, some of the muscles act involuntarily, and jerk the hand in a direction contrary to that which was intended; so that, instead of completing the word which was begun, the pen makes a long scratch on the paper.

"A lady complained of pain in her head, and her mouth was drawn to one side, and hence she was supposed to suffer from paralysis of the muscles of one side of the face. However, when I was consulted respecting her, I observed that there were nearly constant twitches of the cheek and eyelids on that side to which the mouth was drawn; and, on more minute examination, I was satisfied that the distortion of the mouth arose not from the muscles on one side of the face being paralytic, but from those on the opposite side being in a state of spasm. The case precisely resem-

bled that of a patient with spasmodic wry neck, except that the disease influenced a different set of muscles, namely, those supplied by the facial nerve, or the *portio dura* of the seventh pair.

"Perhaps there are no muscles in the body which are, on the whole, more liable to have their actions deranged under the influence of nervous disorders than those of the pharynx and œsophagus. In not a few of these cases, which have been confounded together under the general appellation of stricture of the œsophagus, the disease is either a spasmodic or a partial paralytic affection of these parts, and the patient is so be cured, not by the introduction of bougies into the œsophagus, but by other means." (P. 20.)

Cases of this kind are not only curious as studies, but baffling as regards treatment. Sir Benjamin rebukes the indolent and careless application of specifics, given in the hope that something may hit the disease; and recommends that each case should be studied pathologically, so that the symptoms may be traced to their real origin. His illustrations are so instructive that we cannot but quote them:—

"A patient applies to you complaining of a pain in the testicle, but the testicle appears to have its natural structure, and (except the pain) bears no marks of inflammation. You enquire further, and find that the pain is not constant; that it is especially induced by exercise, and that it subsides when the patient is in the horizontal posture. Examine the groin after he has taken a long walk, and you will perhaps find an incipient hernia; a small portion of bowel just attempting to protrude through the abdominal ring. You apply a truss, which supports the hernia, and cures the pain in the testicle. If you had been careless in your investigation of the case, and had applied leeches and lotions to the testicle, you would, to say the least, have plagued your patient to no purpose.—Another person applies to you concerning a spasmodic wry neck. If you at once conclude that the disease is where it shows itself, and divide the tendon of the sterno-cleido-mastoideus muscle, what is the consequence? The patient undergoes a certain quantity of pain in the operation, and to no purpose; for, before the wound is completely cicatrized, the divided tendon has again become fixed by adhesion to the neighbouring textures, and the contraction of the muscle and the twisting of the neck are as bad as ever. I shall relate a case in which a patient underwent a severe and painful operation to no purpose, in consequence of such a want of discrimination on the part of the surgeon. A sailor had received a severe wound in the ham, I believe from a musket-ball. The wound healed, but not until after a considerable time, and the patient was left with a contracted leg, and suffering from a most agonizing pain in the foot. This state of things having existed for a considerable time, and no benefit having been derived from any of the remedies employed, the poor fellow wished to lose the foot. The surgeon under whose care he was, therefore, amputated the leg. But, unfortunately, he amputated it, not above the knee and above the injury of the nerve, but below the knee and below the injury. I scarcely need tell you the result. The pain continued as severe as ever, and it was not relieved until amputation had been performed a second time higher up in the limb." (P. 24.)

The author's remarks on those cases which depend on irritation of the digestive mucous membrane, or which are connected with gout, or with intermitting fever, are very interesting; of the latter, some extremely striking cases are given. When the cause of the local nervous affection is organic disease of the brain, Sir Benjamin recommends local applications of hemlock, belladonna, stimulating liniments with laudanum, and even blisters, for the palliation of pain.

The Second Lecture in this little work relates to the Various Forms of Local Hysterical Affections, and is full of curious particulars. One of the most remarkable of these, and perhaps one of the most important to the practitioner, is that in which a *joint* is affected with pain connected with hysterical phenomena, and in which the pain and morbid sensibility

may lead the practitioner to suppose that the joint is diseased. The frequency of such a form of affection in women of the higher classes is indeed astonishing. "I do not hesitate to declare," (says Sir B. Brodie,) "that among the higher classes of society, at least four-fifths of the female patients, who are commonly supposed to labour under diseases of the joints, labour under hysteria, and nothing else." (P. 37.) We strongly recommend every enterprising young surgeon to read Sir Benjamin's observations on the diagnosis of these cases, the result of a large experience, and conveyed in simple and intelligible language. Such an affection may originate in a severe illness, or arise from some moral cause having a depressing influence on the constitution. The symptoms generally come on gradually, last long, and gradually subside; but sometimes they yield suddenly.

In other cases, the spine is the seat of the hysterical affection, and disease of the cartilages or the vertebræ being erroneously supposed to exist, the horizontal posture, and perhaps caustic issues and setons, are resorted to, in the case of unfortunate young ladies, "for several successive years, in whom air and exercise, and cheerful occupations, would probably have produced a cure in the course of a few months." (P. 47.) All Sir Benjamin's observations on these cases, also, merit the reader's best attention. With respect to the paralysis that often accompanies them, he observes of this peculiarity, that "it is not that the muscles are incapable of obeying the act of volition, but that the function of volition is not exercised." (P. 48.) He extends this observation to cases of hysterical retention of urine, at least in the first instance; and the following practical remark is valuable:—

"Females who labour under hysterical retention of urine, if left to themselves, usually recover in the course of a short space of time, sometimes almost suddenly; but if the catheter be employed, their recovery may be protracted for an indefinite period. We may lay it down as a general rule, that in these cases the catheter should not be had recourse to: and the only exceptions to it are in those extreme cases in which actual paralysis has taken place, and the bladder is likely to become diseased if not artificially relieved." (P. 50.)

Several useful practical remarks occur in the pages devoted to hysterical aphonia, hysterical tympanitis, hysterical affection of the breast, and the severe forms of hysterical affection sometimes supervening on slight accidental injuries; to all of which we can only strenuously recommend the student's careful attention.

The Third and concluding Lecture is occupied with the Pathology of Hysteria, and the Treatment of Local Hysterical Affections. Three very convincing cases are related, in which, after severe and varied hysterical affections, death ensued, and the most careful examination could detect no alteration in the state of the brain, spinal cord, or other parts of the body, except in the latter (as in the bladder or intestines,) such as were produced by secondary affections; but he justly observes that constitutional differences in the organization of the nervous system may exist which are not palpable to the senses. The same apparent absence of disease is well known to exist in some cases where the mind has been violently affected. Sir Benjamin thinks that in the generality of hysterical cases, "there is an evident weakness and laxity of the tissues, independently of what may be supposed to belong to the tissues of the nervous system." It cannot be doubted that they often exhibited a great want of

Physical power, and many marks of a feeble circulation, and of a deficiency of nervous energy.

The observations of Sir Benjamin Brodie on the Treatment of these affections is, as may be supposed, most judicious. He forcibly points out the evils committed in the conduct of early education, and exhorts his hearers to point out to the more affluent classes of society the errors into which they fall in this respect. In the general treatment, he observes that the whole class of tonics may, under certain circumstances, be employed with advantage; and that the patient should live on a generous diet, should take exercise out of doors, live in the country, and have the mind agreeably occupied. Among tonics, Sir Benjamin ranks the valerian and assafoetida; and he speaks highly of the sulphate of copper in small doses. In particular cases, the state of the bowels, or of the uterus, demands especial attention; and "it is not unusual in aggravated cases of hysteria to find the urine depositing a large quantity of lithic acid, in the form of sand; or the urine may be voided high-coloured, depositing a pink amorphous sediment, abounding in the lithate of ammonia; and in either of these cases the exhibition of alkalies, combined with alterative doses of mercury, purgatives, and a regulated diet, will contribute to produce a cure; the unhealthy quality of the urine seeming to be the cause, rather than the effect, of the hysterical affection." (P. 76.)

We have already mentioned the local applications recommended for the relief of the pain of some of the local hysterical affections. Although the loss of blood sometimes gives relief, repeated bloodlettings are highly injurious to the patient, generally, in Sir Benjamin's experience, causing the patients to become invalids for life; but the patient's attachment to frequent abstractions of blood is often very great, in consequence of the temporary relief thus obtained. Deprecating, as we do, general bloodletting in such cases, as also the application of leeches to the pained part, we must admit that the latter remedy is often extremely beneficial in that class of nervous pains which seem traceable to some unknown condition of the spinal marrow, commonly termed *spinal irritation*. In these cases there often exists local tenderness on the spine, and the application of a few leeches to this part is frequently followed by immediate relief of the pain at a distance. Blisters, issues, and other counter-irritants, applied to the seat of the pain, are generally worse than useless; and whatever treatment is adopted should "involve as little as possible deviation from the ordinary habits of life." In the case of hysterical neuralgia of the knee or hip, amendment seldom takes place until the patient is induced, notwithstanding present suffering, to use the limb. Sir B. Brodie's experience is against the attempt to effect a cure from the division of the nerves supplying the affected part.

In conclusion, the accomplished surgeon whose remarks we have done little more than follow throughout this notice, makes some very useful reflections on the occasional disappearance of hysterical symptoms without any manifest cause for their disappearance; or, more frequently, after some forcible impression made on the nervous system; circumstances which explain some apparent miracles effected by saintly men and by popular quacks: and, as he has warned his pupils against mistaking cases of nervous affection for real local disease, he does not fail to caution them against overlooking disease when it really exists.

ART. IX.

Medico-Chirurgical Transactions, published by the Royal Medical and Chirurgical Society of London, for 1836. Vol. XX.—London, 1837. 8vo. pp. 402.

THE present volume commences by a communication from Dr. YELLOLY "*On Vascular Appearances of Mucous and Serous Membranes, &c. indicative of Inflammation.*" Its author, in a previous paper, performs a most important service to pathology, by showing, with respect to the mucous membrane of the stomach in particular, the little dependence which can be placed on vascularity or extravasation as an indication of the presence of inflammation. In this country, few would now be disposed to admit that inflammation had existed, unless some of its known products were brought forward as proofs. It is, however, true that the vagueness of the term, and particularly its application to a mere fulness of the small vessels, has been the chief cause of some of the theories which may be said to have disfigured, if not disgraced, medical science during the present century. Considerations of this kind, more than the novelties of Dr. Yelloly's paper, recommend it to notice; for the attention can scarcely be too often recalled to the consideration of facts which are of very extensive application.

It appears probable that a vascular condition of the spinal column has been "sometimes regarded as imparting a certain character of spinal inflammation to some diseases of an obscure nature, as tetanus, which did not actually belong to them." Dr. Yelloly has examined the spine of malefactors recently after execution; and he concludes, from his observations, "that a florid vascularity, communicating a scarlet hue to the whole column, is nothing more than venous turgescence, accompanied by slight extravasation." Dr. Yelloly has well alluded to the changes which occur in inflamed parts after death.

"Where inflammation has existed *externally*, death makes a very important alteration of appearance. The redness goes off, except where effusion has taken place, and the remains of it are seen; while the tumour sinks, except in as far as any deposition in the cellular membrane has taken place, and may render it permanent. But, in the *internal* organs, and more particularly the abdominal viscera, various modifications take place, from the peculiar situation which these parts occupy in the animal body. Being nearly connected with a double series of venous structure, that of the liver and that of the heart, in which a considerable portion of the blood is concentrated after death, a retarding or obstructing cause operates on the veins which belong to them and which, added to the softness of texture, very generally produces more or less fulness of the vessels; and thus an appearance of more or less vascularity, both on the external and internal surfaces of the chylopoietic viscera." (P. 9.)

We recommend the conclusion of Dr. Yelloly's paper to our younger readers: it contains very judicious strictures on some of the continental notions of inflammation.

Mr. J. G. PERRY has related a "*Remarkable Case of Varicose Aneurism, with Observations.*" The peculiarity in this case consists in the circumstance that the communication between the artery and vein was established independently of any external wound. We subjoin a short analysis of it. J. Allum, æt. 47, of delicate health, first recognized

small swelling below the left knee, which gradually increased. Two years after the commencement of this swelling, his wife first discovered a palpitation in the middle of the left thigh, which increased. Allum came under Mr. Perry's care in February, 1834. The swelling beneath the knee was a distinct aneurism. In the upper two-thirds of the left thigh there was a visible pulsation along the course of the femoral artery and vein, ending where the vessels pass through the triceps tendon. In and around the swelling was a distinct *frémissement*, which continued during the intervals of the arterial pulsations. On one examination, the *frémissement* was accidentally stopped by pressure with the finger upon the artery, just where it passes through the triceps; the circulation continuing in the vessel. A pad fitting to a spring was applied to this part. In September, 1835, the tumour beneath the knee remained as before; but the *frémissement* in the thigh was less in force and extent, and could not, as previously, be *seen*. The popliteal swelling now suddenly increased, the skin appeared ready to slough. The femoral artery was exposed, and found to be in a very diseased state. A ligature was passed round it; but the patient died of hemorrhage from the wound on the sixth day after the operation. We should mention that it was deemed unjustifiable to tie the femoral artery in an earlier stage of the case, and that this means was reserved until life was threatened by the increase of the popliteal tumour.

The state of the parts observed after death was as follows: The external iliac arteries, and especially the left, were very tortuous, being reflected upon themselves. The coats of the femoral artery, throughout its whole course, were scarcely thicker than those of a vein. Immediately below the origin of the profunda, the vessel was much dilated: its coats were softened and thin, and anteriorly was an aperture, from which the hemorrhage had taken place. The ligature had been placed at a very short distance below this part of the vessel. At the spot in the thigh where the communication had been presumed to exist between the artery and vein, there was an aneurismal sac, about as large as half a walnut, firmly ossified within; which, by the pressure which it had exerted upon the vein, had caused absorption of its coats, so as to form a circular opening, about two lines in diameter, into which the aneurism had burst; thus inducing a free and persistent communication between the vessels. Just below the aperture, the vein was obliterated at a single point, below which it was again pervious. In all the rest of its course up the thigh, it was diminished in size and thickened. There can be no doubt that the obliteration of the vein was an effect of the pressure of the pad. At the lower part of the popliteal artery, the vessel was dilated into a large aneurismal sac.

Mr. Perry has been able to find no other case of such an accident occurring in the arteries of the extremities; and, in addition to the knowledge which we at present possess of the little liability of veins to partake in ulcerative or sloughing process going on in contiguous parts, he quotes two remarkable illustrations. As explanatory of the vast complication of disease in the foregoing case, the anatomical condition of the parts is alluded to: "the vessels being enclosed in a sheath so dense and unyielding as to preclude the possibility of the vein undergoing displacement."

MR. SAMPSON'S "*Case of Recovery from the Insensibility of Intoxication, by the performance of Tracheotomy,*" is of great interest, and very creditable to him as a scientific surgeon. In a state of profound coma, when, after the ineffectual employment of the ordinary means, there appeared to be no hope of life, Mr. Sampson determined on the performance of tracheotomy. The operation was attended with complete success. It is peculiar in this case that there were "violent efforts of the extra-respiratory muscles," with impediment to the entrance of air from "collapse of the glottis, which (says Mr. S.) might be accounted for by a paralyzed state of the eighth pair of nerves and recurrent branches."

The perusal of this case leads us to ask Mr. Sampson whether there might not have been some foreign body, vomited during a previous stage of the intoxication, lodged at or beneath the glottis? It appears to us possible that such may here have been the case, both because the symptoms, as far as they are mentioned, accord with such a supposition, and because it is, we believe, contrary to what has been observed in such cases for so considerable a paralysis of the recurrent nerves of the par vagum to be associated with so much capability for the performance of the other functions, as would convey the stimulus efficient for a "violent effort of the extra-respiratory muscles."

The next paper, by Mr. STAFFORD, "*On the Treatment of Injuries received in Dissection,*" does not add much to the amount of our knowledge of such injuries. The accumulation, however, of authentic cases, particularly when the treatment has been followed by recovery, must be one of the means by which eventually we shall acquire correct views of the whole history of the accident in question; and Mr. Stafford has made a useful addition to our previous stock. There appears to be sufficient ground to conclude that in one, if not in two, of the cases here related, the infection took place without previous abrasion of the cuticle. But we must confine our notice simply to the practical part of Mr. Stafford's remarks.—The nitrate of silver should be rubbed immediately above the limit of the inflammation, sufficiently to blacken the cuticle. Violent pain in the wound, and symptoms of great constitutional disturbance of an irritative character, are best combated by muriate of morphia, repeated in sufficient quantities to keep up its effect. It is scarcely necessary to add, that general bleeding can most rarely be otherwise than injurious. But, if the inflammation in the hand and absorbents be very great, the patient has but little chance of recovery without the use of topical bleeding. Leeches should therefore be applied on the inflamed part, on any swelling arising from the wounds along the course of the inflamed absorbents, and on the glands of the axilla. The good effects of this treatment are sufficiently illustrated. When a swelling is formed, and it is doubtful whether or no it contain pus; when, together with it, there are pain, depression, fluttering pulse, delirium, exhaustion, and anxiety, the swelling should be opened; and, as the chief object, if matter be not formed, is to relieve the tension of the part, the incision should be of considerable length. The experience of many surgeons has established the propriety of the early opening of such swellings. As an example of the evils attendant on a neglect of this practice, Mr. Stafford remarks that, "in most of the cases related by Dr. Duncan, Colles, and others,

where a swelling or abscess took place without an opening having been made into it, the patients did not recover."

The following inference appears to be fully justified by recorded facts, "that free incisions made into swellings arising from the absorption of animal poison are attended by the most beneficial results, and that they ought to be made in the earliest stage of their formation."

The following "*Case of Fracture and Displacement of the Atlas*, by BENJAMIN PHILLIPS, Esq.," although "practically unimportant from its extreme rarity, is not wanting in importance as an example of the extent of injury which may be experienced by this portion of the spinal column, without harm to the important organ whose natural protector it is, or even to the economy; and, as a reason for rescinding the dicta that 'a fracture of the processus dentatus proves instantly fatal,' and 'that a fracture of the cervical vertebræ, (above the third,) with considerable displacement, is almost immediately fatal.'" W. Cross fell from a hay-rick upon his occiput, and was stunned. He recovered, walked half a mile to be bled and purged by the parish surgeon. For a month after the accident, when Mr. Phillips first saw him, he complained of "stiff neck," or inability to rotate the head. At the back of the neck, over the second cervical vertebra, was a small tumour. All the functions of the economy, excepting the rotation of his head, were well performed. He was treated on the supposition that an inflammatory action existed in the swelling of the neck, consequent upon the injury; but the only benefit derived was a diminution of tenderness.

About six months after the accident, a change in the character of the voice and a difficulty in swallowing led to a careful examination of the throat, and the detection of a slight fulness at the back of the pharynx; a circumstance which appeared quite reconcileable with the previous diagnosis. He soon afterwards had an attack of pleurisy, and this was followed by anasarca and hydrothorax, with which he died. Up to the last week he walked to the water-closet, and was never assisted in taking his food; and there was no evidence of motion or sensation being impaired, otherwise than has been mentioned. The neck only was examined after death.

"The condyles of the occiput still rested upon the articulating surfaces of the atlas, but the atlas was found to be, not a separate and independent vertebra, but an appendage to the axis. So much of its anterior portion as includes the surfaces by which it is articulated with the occiput and with the axis, had been violently separated from the posterior portion of its ring, and had been carried in an oblique direction, downwards and forwards, until it arrived upon the same plane, but anterior to the axis, to the body and transverse processes of which it became attached by perfect bony union; whilst the posterior fragment had suffered no displacement. Under these circumstances the bone presented two spinal foramina and four transverse, but no odontoid process. This organ having been fractured and separated, no organ passed through the anterior spinal foramen." (P. 82.)

By the oblique direction of the force which caused the fracture acting upon the atlas, the anterior portion was propelled downwards and forwards, between the axis and the pharynx, the posterior portion remaining as nearly as may be *in situ*. Thus, either the odontoid process must have been fractured or its transverse ligament torn; the occurrence of the former saved the patient's life. When the examination was made,

there was scarcely any appearance of condensation of the surrounding tissues, or indeed any thing to warrant the idea that the region had been the seat of so much violence. There was no lesion of the spinal cord.

The advantages to be derived from *artificial Respiration in some Cases of Poisoning with Opium* are illustrated in the next communication, from C. J. SMITH, Esq.—Jane H., æt. 25, at six in the morning, swallowed opium. The stomach-pump was employed, together with the ordinary means in such cases, but without success; so that, at 11½ A.M., as there was no pulse at the wrist, and only slight irregular action of the heart, and the respiration had nearly ceased, it was determined to employ artificial respiration, by means of a pair of bellows through the nostril. This was continued for an hour, without intermission, at which time the heart seemed to be rallying; but, if left to itself, it sank again. Other stimulants were employed, and the treatment continued till two P.M., when she was so evidently rallying that it was deemed safe to leave her. At three P.M. she was found relapsing into her former state. Artificial respiration was again employed, and continued for two hours; when it was suspended on account of the pulse having become regular, and her having made some attempts to move, and showing evidence of pain on being pinched. She perfectly recovered.

This case (and it is not a solitary one of the benefit attending such treatment, the sixth volume of the "London Medical Observations and Enquiries" containing a similar instance, recorded by Mr. Whately, shows that, by keeping up artificial respiration, the vital powers may be maintained, until the deleterious influence of the poison is worn out or exhausted; probably, as has been suggested, by its becoming decomposed: and it affords the strongest encouragement for the assiduous employment of a remedy, which may effect a cure when all other means have been tried without effect, but which does not appear to have been used so frequently as its merits demand.

Dr. P. N. KINGSTON'S "*Remarks on two Forms of Atrophy of the Heart's Valves, which interfere with their Functions,*" need not detain us long. Both forms of this deficiency have been previously noticed; and, as Dr. Kingston does not bring forward any satisfactory method of diagnosis or of treatment, we shall merely allude to his anatomical description of the disease in question, which may be useful to some of our readers. "The lesion consists in a simple shortening of the mitral or tricuspid valves, without any diminution of its natural thinness, pliancy, and transparency; the orifice to which it belongs possessing at least the ordinary caliber. The extent of wasting is often considerable. Thus the length of the posterior lamina of the mitral valve was in one case reduced to three lines; in another, it nowhere exceeded a line and a half. The laminae of the tricuspid valve are naturally from eight to eleven lines in length; but in one case they all three fell very far short of this, and one was only three lines." Another lesion closely allied to this is "the interruption of the continuity of a valve by apertures, sometimes of large size, and sometimes so numerous as to reduce the structure to a mere network, while the remainder is often very attenuated, especially towards the edges of the apertures. Sometimes a large gap is seen, subdivided only by a few thready fibres. These, in the case of the auriculo-ventri-

cular valves, are generally prolongations of chordæ tendinæ." (P. 91.) In about thirty of the cases of diseased valves, of which Dr. Kingston took notes during a definite period, one or other of these species of atrophy existed in ten. From what is now well known of the effects of impediments to the heart's physiological condition existing in any of its orifices, it is unnecessary for us to follow Dr. Kingston in his reasonings on this subject.

False inferences may have been drawn as a consequence of this defective state of the valves having been hitherto but little regarded, and, on this account, the following remarks are worthy of attention.

"When there have been post-mortem examinations of cases in which this lesion existed, but in which it passed unobserved, the symptoms to which it had given rise during life have necessarily been referred to some other cause. Thus, if this lesion had communicated to the ear a morbid murmur, the case has been considered as affording an instance of morbid murmur independent of valvular disease. Whenever it has occasioned or helped to occasion palpitations, syncope, dyspnoea, dilatation of the heart's cavities, or dropsy, some concomitant or hypothetical lesion must have unjustly bore the blame. Hence have been deduced erroneous conclusions respecting the nature of diseases, and the diagnostic import and value of symptoms, which a knowledge of these lesions will rectify." (P. 109.)

Mr. BENJAMIN TRAVERS, Jun. has added another case to those of *dislocated Thigh-bone* "termed unusual, because not hitherto described in any systematic work upon the subject." The individual fell from a height of about twenty feet, the left buttock striking upon a coil of chain-cable. The limb was dislocated, but was not reduced. Eight months after the accident, "the left buttock is flattened; the trochanter rather below, and to the outer side of the anterior and superior spinous process of the ilium. The neck of the bone lies apparently between the two anterior spinous processes. Its head cannot be felt; it is invested by an abundance of bony matter, which extends backwards and inwards over the brim of the pelvis and iliac vessels, occupying in front nearly the whole space between the inferior spine of the ilium and that of the pubis respectively. There is complete eversion, slight mobility, and imperfect progression with the aid of a crutch." In addition to the species of dislocation hitherto described in systematic works, Mr. Travers considers from this and other cases which are recorded, that it may now be further admitted that the head of the bone may assume a position either directly *above* or *below* the articular cavity.

A communication by Sir B. C. BRODIE, on "*Injuries of the Spinal Cord*," will well repay a careful perusal. Wounds and injuries of the head have largely attracted the attention of surgical writers: the same cannot be said of similar lesions of the spinal cord, and the intent of the present paper is to remedy this defect in surgical literature. Our limits will not allow us to lay before our readers as much of this paper as we could wish. On the subject of wounds, Sir B. Brodie has nothing new to communicate. The conditions found on dissection after injuries of the spine are thus classed: 1. Fractures of the vertebræ, without displacement of the fractured surfaces. 2. Fractures with depression or displacement of bone, diminishing the diameter of the spinal canal, and occasioning pressure on the cord. 3. Fractures complicated with

dislocation. 4. Dislocations not complicated with fracture; the possibility of which is now fully established. 5. Extravasations of blood on the surface or membranes of the cord, rarely of any considerable extent. 6. Small clot of extravasated blood in the substance of the cord. 7. Laceration of the cord and its membranes, very various in kind and degree. 8. Lesion of the minute organization of the cord from a blow, without fracture or dislocation, and where the investing membranes are apparently in no way affected. In such cases, if the spinal cord be examined at a very early period after the accident has occurred, the central part is softer than usual. If the patient survive for a longer period, this disorganization extends. It is the most common consequence of injuries of the spine and the cause of the worst symptoms in the majority of cases. In concussion of the brain, Sir B. Brodie has already remarked that we are not justified in the conclusion that, because no changes are to be detected after death, "there is therefore, in reality, no organic injury;" and that "it is difficult to conceive in what other manner concussion of the brain can operate, so as to produce the effects it is known to produce: and, if we consider that the ultimate structure of the brain is on so minute a scale that our senses are incapable of detecting it, it is evident that there may be changes and alterations in it which our senses are incapable of detecting also." These remarks he here applies equally to cases of concussion of the spine.

The nature of the injury of the spinal cord, which, in cases of violent concussion, at once impairs or even destroys its functions, is a curious subject of enquiry. The author suggests, but has never practised, the experiment of macerating in alcohol a spinal cord so contused, and then examining its fibres to detect in what respect they are changed from their natural condition. For the following reasons, it appears doubtful whether the softening and dissolution of the cord after injuries is inflammatory; because, 1, this softening can sometimes be detected before there could have been time for inflammation to have produced it; 2, the softened part at first exhibits no vascular appearance; 3, when the cord is softened to disorganization, the investing membranes are mostly natural in appearance, shewing none of the products of inflammation; 4, the symptoms which mark the progress of these changes are merely a continuation of those which the concussion of the spinal cord has occasioned in the first instance, and which must have been wholly unconnected with inflammation. This softening is regarded by Sir B. Brodie as resembling that described by Rostan as occurring in the brain. Of course, inflammation may follow these injuries, and the possibility of its occurrence must not be overlooked.

The symptoms attending injuries of the spine will vary according to the situation, the kind and degree of injury, and according as (from circumstances unknown to us,) life is more or less prolonged. Sir B. Brodie has analyzed the associated symptoms, and has endeavoured to point out under what circumstances each symptom presents itself. We must confine ourselves to such parts of his observations as are more or less generally known; not without regret, for there is in his observations so little that is superfluous, that we could, had we space, willingly record them all.

Paralysis of Voluntary Muscles. The lower limbs are more frequently

paralyzed than the upper, even where the lower part of the cervical spine has been injured; some of the origins of the brachial plexus being probably still above the injured part. This circumstance is remarkable, as it is contrary to what happens when the functions of the spinal cord are interrupted in consequence of caries of the cervical vertebræ. In these last cases, the paralysis is often complete in the upper limbs for many weeks, or even months, before it extends to the lower. Paralysis of the upper limbs has been known to follow contusion of the dorsal vertebræ; but it is probable that such cases were but apparent exceptions to the general rule of paralysis being confined to the parts below the injured portion of the spinal cord. It is easy to suppose that, in such cases, a contusion has taken place above the obvious seat of injury. We think that Sir B. Brodie is not justified in concluding that *muscular spasms* are in all cases the effect of pressure, when accompanying injuries of the spine. This conclusion is founded on a very limited number of cases, and the whole history of spasmodic affections, as well as of the inferences to be derived from what we know of the effect of poisons, must make us hesitate in agreeing with the author on this point.

Affections of Nerves of Sensation. It is well known that there are in these injuries the same varieties with respect to sensation that there are with respect to muscular action. When recovery takes place, the restoration of sensibility usually precedes that of voluntary motion.

Affection of the Respiration. Artificial respiration would be the means of prolonging life for several hours, where the spinal cord is divided above the phrenic nerves. As in the case communicated by Mr. Phillips, dislocations of the first and second vertebræ do not prove fatal in every instance, in the manner generally supposed. Sir B. Brodie relates the case also of a child, where the transverse ligament of the axis had given way, and the odontoid process projected considerably into the spinal canal. The dura mater was entire, and prevented the dislocation being so complete as it would have been otherwise. The child died with symptoms of hydrocephalus. The respiration, when performed only by the diaphragm, seems to be insufficient to maintain life, and recoveries under such circumstances are very rare. The lower the injury is in the back, the less is the respiration affected; and, wherever the injury is situated, a disposition to cough, with a copious expectoration, is likely to occur some time after the accident.

Priapism. The author has never known this to occur excepting there was paralysis. "It seems," he says, "to be connected with injuries of the upper rather than with those of the lower portions of the cord: at least, I am not aware that I have met with it where the seat of the injury has been below the sixth dorsal vertebra. It occurs even when the sensibility of the parts is totally destroyed, and may be induced by the mechanical irritation caused by the introduction of a catheter, where the patient is entirely unconscious of the operation." (P. 140.)

Affections of the Urinary Organs. To the changes produced in the secretion of the kidneys and bladder, in injuries of the spine, Sir B. Brodie has, since 1807, paid particular attention; and his description of them we shall here give in an abridged form.

"The first effect of a severe injury of the spinal cord is not unfrequently to occasion a marked diminution in the quantity of urine secreted. This is most observable

when the injury is in the lower part of the neck, and where, in consequence, the function of respiration is very much impaired. . . . The same thing, however, may occur when the injury is in the lower part of the spine. . . . In some cases the urine which is first secreted after the occurrence of the accident . . . has a peculiarly offensive and disgusting odour. In others it is highly acid, having an opaque yellow appearance, and it deposits a yellow, amorphous sediment." . . . But most commonly "the urine is voided of an ammoniacal odour and turbid: when allowed to cool, it deposits a large quantity of adhesive mucus, and is highly alkaline. After some time a quantity of white matter (phosphate of lime,) may be detected in the mucus, and it is tinged with blood. At a still later period, a considerable quantity of coagulum of blood is blended with the mucus and urine. These appearances very commonly shew themselves as early as the second or third day after the occurrence of the accident; sometimes between the seventh and ninth days. I have not observed that injury of one part of the spine is more liable to produce them than that of another. There is a great variety in the period of their duration. In fatal cases, they sometimes continue to the last; at other times, they continue for two or three weeks, then subside, and the urine remains transparent and of an acid quality afterwards. In other cases, the quality of the urine varies almost from day to day, without any manifest reason for the change." (P. 142 *et seq.*)

The adhesive mucus above mentioned is furnished by the bladder and ureters; a consequence of inflammation occasioned by the spinal injury. The effects of this inflammation are very manifest on dissection.

Alteration of the Vital Temperature. In one case in which there was a separation of the fifth and sixth cervical vertebræ, and where respiration was performed by the diaphragm only, the temperature between the scrotum and thigh was 111° F. This is mentioned as confirmatory of the experiments of Chossat, which tended to prove that there was a remarkable evolution of animal heat in animals, on division of the superior portion of the spinal cord. Sir B. Brodie has seen several cases in which an accidental injury of the spinal cord has produced the same effect.

The disposition to *gangrene* in these cases is an evident consequence of the injury of the cord, as it occurs whether the heart's action be strong or feeble, and is limited to the parts below the injury. The sloughs sometimes commence the second day after the accident, when it has affected the cervical portion of the cord.

The reaction which follows the collapse that immediately attends upon severe injuries of the cord is such as indicates general debility, rather than active inflammatory disease. "Inflammation of the membranes of the spine," says the author, "is undoubtedly a much more rare consequence of injuries of the spine, than inflammation of the membranes of the brain is of injuries of the head."

The symptoms of injuries of the spine, and the results to which they lead, appear to be characterized by no material difference, whether the cord be lacerated or compressed, or has undergone that kind of disorganization which is produced by a severe concussion; and the great majority of the symptoms are the same, whatever part of the spinal cord has suffered from the injury. There is only one order of symptoms with respect to which a great difference exists, according as the seat of the injury is in one or another part of the spinal cord: i. e. those connected with respiration. A consideration of the connexion between the various parts of the cord and the muscles of respiration will explain why the danger to the patient's life is greater and more imminent in proportion as the injury is nearer to the brain.

Treatment of Injuries of the Spine. Any attempt to replace a dislocated or fractured bone of the cervical vertebræ must be made with the greatest caution, if undertaken at all: in the lower part of the spine, the attempt at reduction may not only be made with impunity, but with success. Both theoretically and from the results of the practice, as far as it is known, Sir B. Brodie is adverse to trephining the spinal column. The supine and horizontal posture on a mattress is proper. If inflammation of the membranes occur, it should be treated by bleeding, which may require to be repeated. But the indiscriminate employment of bleeding in such cases is strongly condemned, as might be supposed from the views as to the pathology of the disease which we have already noticed. A combination of ammonia with purgatives often facilitates their operation.

Before noticing the "*Observations on some Tumours of the Mouth and Jaws*, by R. LISTON, Esq.," we must object to the extremely loose and careless manner in which they are communicated. A sentence, at page 170, commencing "Lodged deeply amongst the bones of the face," &c. is a rare example of bad punctuation, incorrect grammar, and confused construction; and the paper is disfigured in other parts in a similar manner, though less in degree. "Disease repullulating from parts which surrounded the original nidus of the mischief," (p. 179,) appears to us a very good specimen of catachresis; a species of metaphor which requires but to be expressed in sober Saxon to manifest its absurdity. We allude to these points, because they diminish the value of Mr. Liston's communication; and because, as he is likely to continue an active contributor to the stores of surgical science, we should wish to be able to derive pleasure as well from the manner as the matter of his future communications.

One principal object of the present paper is to point out the characters of those tumours of the jaws which may with safety be removed. We must content ourselves with a description of a tumour of the jaw, which, in several instances that have fallen under Mr. Liston's notice, he has removed with success. He objects to attempting the removal by operation of those which are malignant, unless the case is met with in its commencement. He has recorded the case of one individual operated on thus early, in whom the tumour was of a decidedly brain-like character, presenting a smooth greasy section, broken up and bloody-looking at a part where it was attached to a decayed molar tooth. A period of four years has elapsed since the operation without a return of the disease.

The following is Mr. Liston's account of the tumour admitting operation.

"The simple tumour, which, whether involving the upper or the lower jaw, differs in consistence and in form also from those soft, lardaceous and brain-like masses whose appearance and progress I have shortly alluded to. They attain, though slowly, a great size; they present a globular or botryoidal form, displace the surrounding soft and hard parts, project from the countenance, and, deranging the features, produce great and frightful deformity. The skin may be thinned and pervaded by enlarged venous branches; it is discoloured, but not incorporated even at an advanced stage with the morbid mass, nor are any of the surrounding tissues contaminated. The projection towards the mouth . . . is hard and elastic, and conveys the feeling of brawn, interspersed with bony particles; but it is covered by a continuation of the mucous lining of the cavity slightly thickened and altered, furnishing an inconsiderable discharge, and that neither offensive nor of a bad quality. This growth in

the mouth presents indentations made by the teeth, with which it comes in contact. The hard palate, when the upper jaw is involved, is generally covered by a thick layer of the tumour, which projects over and lies in contact with, but is not adherent to it, nor to the gums supporting the teeth of the opposite side." (P. 171.)

Mr. Liston has found few such tumours described as affecting the upper jaw. The paper contains an account of the method of operating for the removal of these morbid growths. We have not space to do it justice, but those who are aware of the great operative skill of Mr. Liston will refer with confidence to his opinion on this subject.

The paper by Dr. JOHN BURNE, "*on Inflammation, Chronic Disease, and perforative Ulceration of the Cæcum*," is valuable, and will be very acceptable to many of our readers. The attention of the profession has of late years been considerably directed to the disease in question; and we are surprised to find Dr. Burne stating that he has not met with any notice of it except in detached cases in the Medical Journals. In our Second Number (p. 501,) we gave an account of three separate publications on this subject, and referred to several others. However, as the disease is still too little known, and as Dr. Burne's account of it is very good, we shall shortly extract from his paper, its main characters, diagnosis, and treatment.

This affection of the cæcum is of frequent occurrence, about twenty cases having fallen under Dr. Burne's observation. They are, says Dr. Burne, apt to be confounded with idiopathic abdominal inflammations, and to be treated as such, much to the injury, if not to the destruction, of the patients. In all Dr. Burne's cases, the disease has been symptomatic of some mechanical exciting cause, as the lodgment of undigested food, of fruit stones, or of concretions, which the structure of the cæcum and appendix favours; and hence the peculiar features of the disease. Before describing the disease, we must say that we see no reason, even from Dr. Burne's own cases, to conclude that it is *always* occasioned by a mechanical cause.

"The peculiarities of this inflammation," says Dr. Burne, "produced by such mechanical causes, are, the marked and fixed local signs; the invasion of them without any obvious cause while the patient was in health; their gradual development; their obstinacy; the late supervention of the febrile movement, and its less degree in proportion to the local affection and suffering, and the less anxiety depicted in the countenance than is noticed in the idiopathic enteritic inflammation. These are the peculiarities." (P. 202.)

The development of the symptoms has been, in all Dr. Burne's cases, in the following order: uneasiness followed by pain deeply seated in the right ilio-inguinal region, arising unexpectedly whilst the person was in health, and not preceded by rigor or exposure; the pain increases, is fixed and constant; tenderness, fulness, and tension of the whole ilio-inguinal region follow; the bowels are constipated, and do not reply to medicine, and the patient grows sick and vomits. Some fever now manifests itself; the pulse has a character of irritation and inflammation combined; the patient lies on his back quite still. This condition may persist for several days; the fulness and tension extending to other parts of the abdomen, and the abdominal parietes covering the cæcum become *exquisitely tender*. The constipation continues, but the vomiting does

not become frequent and distressing as in enteritis. A subsidence of the symptoms rarely takes place in less than seven or eight days. Sometimes the patient sinks without relief of symptoms. At others, an emphysematous tumour occurs, which proves to be a fæcal abscess.

"The *diagnosis* of these cases is determined with precision by the seat of pain, the exquisite tenderness and the tension; by the sudden invasion of the symptoms whilst the patient was in health; by the local signs preceding the febrile movement; by the degree of fever being less than in idiopathic inflammation; and by the less marked anxiety of countenance." . . . "The circumscribed fulness and hardness in the region of the cæcum will give assurance of the seat and nature of the affection." (P. 205.)

In the *Treatment* of this disease, it must be remembered that the cause of the inflammation is mechanical in many cases, and that the first object is to remove this cause. The indications are to moderate the inflammatory action to a degree consistent with the vitality of the organ affected, and to accomplish this with as little expense to the bodily powers as possible; so that, if fæcal abscess should form, nature may be able to go through the tedious and difficult process which would be inevitable. Bloodletting must be moderately practised. Warm thin poultices must be applied after leeches. Common enemata and aperients must be employed to dislodge the offending matter. Fomentations are very useful. If the symptoms persist, and an emphysematous tumour presents in the lumbar or ilio-inguinal region, it should be immediately opened by a free incision. Great attention will now be required to support the patient's strength.

In addition to the above-described acute inflammation, the cæcum is not unfrequently the seat of a subacute chronic inflammation or pathological congestion, which induces thickening of its tissues and contraction of its natural capacity, eventually determining, as in the case of stricture elsewhere, a complete and fatal obstruction. The effects produced by perforative ulceration of the appendix cæci depend much upon its situation. "If," says Dr. Burne, "it should happen to depend into the pelvis, then the pelvic viscera will be implicated: if it is situated upon the iliac fascia and beneath the cæcum, then the belly of the iliacus internus and neighbouring adipose tissues will be involved, and the course of the abscess be determined accordingly." Small bodies are not uncommonly found in the appendix, and the only effect they produce may be ulceration of the mucous membrane of that organ; but, if the substance be larger than the canal of the appendix, perforation is the ultimate consequence. When the peritoneum becomes perforated, the inflammation increases, and either a general peritonitis is produced, or the inflammation may be limited to the vicinity of the perforation, and an abscess may form. This abscess may come forward and burst, and the patient recover; or it may remain circumscribed and stationary, forming a deep-seated painful tumour in the neighbourhood of the cæcum, which, by its proximity to this gut, may produce obstinate constipation and sympathetic disturbance of the whole system, and thus gradually wear down and exhaust the patient. Of these various forms of disease, Dr. Burne has recorded some cases in detail.

The attention of Dr. THOMSON, of Edinburgh, and that of his son Dr. WILLIAM THOMSON, has for some time been given to the subject of the

next communication by the latter gentleman, "*On black Expectoration and black Matter in the Lungs.*" Dr. W. Thomson is desirous "of calling the attention of the profession to the evidence in favour of the extraneous origin of the black matter by which the sputa are liable to be discoloured and the lungs to be infiltrated, which has been supposed to be derived from the occurrence of these affections in persons who, from their occupations, are particularly exposed to the inhalation of carbonaceous powders or gases, such as coal-miners and moulders in iron-works." The present paper is the commencement of the enquiry, and consists of cases and communications from some individuals who have had considerable opportunities of observing the disease. Our notice of it must necessarily be very short. The cases are thus arranged: I. Those in which the lungs have actually been found infiltrated with black matter after death; *a*, with symptoms of pulmonary affection during life, the expectoration being for a longer or shorter time of a black colour; *b*, with no pulmonary ailment, or at least with no black expectoration during life. II. Those in which the disease was suspected to exist from the nature of the symptoms, but which were not examined after death. Of I. *a*, ten cases are known, of which nine occurred in persons engaged in coal-mines, and one in a moulder employed in the Carron iron-works. Of the second subdivision, six cases have come to Dr. W. Thomson's knowledge, all in colliers. Numerous cases of the second class are recorded, as well as some very interesting communications from practitioners residing in coal districts. We subjoin a description of the principal anatomical character of the disease from one of the recorded cases.

"When cut into, both lungs presented one uniform, black, carbonaceous colour, pervading every part of their substance. The right lung was much disorganized, and exhibited in its upper and middle lobes several large irregular cavities, communicating with one another, and traversed by numerous bands of pulmonary substance and vessels. These cavities contained a good deal of fluid, which, as well as the walls of the cavities, partook of the same black colour. A considerable portion of the pulmonary substance surrounding them was dense, hepatized, and friable. The rest of the lung was somewhat condensed, and very œdematous. The serum, when expressed, was of the same black colour as the substance of the lung. Some minute hard points could be felt in various parts of both lungs, but they did not differ at all in colour from the surrounding substance, and no distinct tubercular deposition or infiltration could be detected in those portions of the lungs which were most hepatized, even with the aid of the microscope. The texture in these parts appeared quite uniform, and the minute hard points felt in other parts rather conveyed the impression of their being merely the ends of small bronchial branches divided on making the section. The bronchial glands did not appear enlarged, but partook of the same black colour as the substance of the lungs." (P. 240.)

With the exception of the occurrence of the black sputa, which has been stated not to exist in all cases of the disease, it does not appear to possess any very characteristic symptom. Early dyspnœa existed in many cases; but some are mentioned as resembling asthma and chronic mucous catarrh and chronic bronchitis. A great variety of opinion has existed, and still continues to exist, as to the origin of the disease; the framers of such opinions having been influenced apparently by the circumstances in which the cases that fell under their notice appeared to originate. Thus, the disease has been ascribed to the inhalation of coal-dust, gunpowder smoke, lamp smoke, choke-damp, the impure air of

mines, consisting of a mixture of carbonic acid gas and the atmospheric air; and one of Dr. W. Thomson's correspondents is disposed to consider that the black matter is generated in the lungs; adding, that "when its formation has once taken place, it appears never afterwards entirely to leave the lungs, but maintains its existence within the body during the remainder of life, and this although the individual afflicted with it does not continue to work as a miner." He speaks also of a woman who "has not been in the pit for fourteen years, and has had constant black spit, without any pectoral complaint." T. Ross, "after having been a number of years employed as a miner, was at sea for three years; and during the whole of that time his sputa were never perfectly free from a black impregnation. I could cite numberless cases similar to these." For assisting those who may be disposed to the prosecution of this enquiry, the following questions are subjoined.

"If such an appearance (i. e. considerable and long-continued black sputum,) has presented itself to your notice, we are desirous to be informed, 1. Whether it has been found in particular mines or manufactories more than others, and in one class of workmen in those establishments more than another? 2. Whether it appears to you to depend on an imperfect evolution of carbon from the lungs, in consequence of persons respiring a confined or vitiated atmosphere, or to be occasioned by the inhalation of extraneous carbonaceous matters; and, if by the latter, what you conceive these matters to be:—the smoke of the candles or lamps employed by the workmen; or of the gun-powder employed in some mines in blasting, or what other agent? Should you have formed any opinion on this subject, may we request you to state the grounds of it? 3. Whether the black expectoration occurs more frequently in persons apparently healthy, particularly as it regards the pulmonary organs, or in persons in whom there is reason to suspect a morbid condition of these organs, such as chronic bronchitis or tubercular consumption? 4. Whether the black colour of the sputa is constant or only occasional? 5. Whether, in any cases of this kind, you have had an opportunity of ascertaining, after death, the state of the lungs and bronchial glands? 6. Whether, in any dissections you have made of persons whose sputa had not been so discoloured, you have found the lungs infiltrated with black matter capable of tinging the hands and of communicating to water the colour of china-ink." (P. 299.)

This communication is highly creditable to the industry and talents of its author.

The next communication is the termination of a *Case of Ligature of the external Iliac Artery*, which was related by G. NORMAN, Esq. of Bath, in the tenth volume of the Society's Transactions. It contains an interesting account of the collateral circulation which was established subsequent to the ligature of the external iliac artery, the man having lived twenty years after the performance of the operation.

"*Researches on some points of the Pathology of Pulmonary Tubercles*, by P. N. KINGSTON, M.D." The design of the present paper is to show, 1, that the common pulmonary tubercle is a vascular texture; 2, that it sometimes originates in an alteration of the air-cells and their secretions; 3, that now and then it is entirely healed, even when it has extended over a very large portion of the lungs. In favour of the vascularity of tubercles, Dr. Kingston has offered the strongest evidence which he could be expected to do, and which we can scarcely contradict; for he says that he has seen red lines in tubercles, and that there was no room to doubt that they were blood-vessels.

"A careful section," says Dr. K., "being made of the tubercle intended for examination, the cut surface was seen by a strong magnifying glass, sometimes also by the naked eye, to be traversed by continuous red lines, which were sometimes short and unconnected, but often of considerable length, and making frequent ramifications and anastomoses, quite after the manner of small blood-vessels." . . . "These red lines could not be removed by being gently scraped with the edge of a scalpel. In many instances they might be traced from the centre to the circumference of the tubercles, whence they were sometimes seen to extend into the adjacent pulmonary parenchyma, or to communicate with the vessels in the neighbourhood." (P. 310.)

So great appears to be the facility with which Dr. Kingston can detect these red lines in tubercles, that one can hardly help feeling surprise, after reading his paper, that their vascularity should be a subject of dispute at the present day. And yet it is true that not only we ourselves, but the most eminent and experienced pathologists of past and present times, have failed in observing what seems to have been so readily discovered by Dr. Kingston. Is there not some fallacy in this?

On the second point, the origin of tubercle, it will be seen that Dr. K. maintains no novel opinion; and he has recorded a remarkable case, in which a tuberculous affection, so extensive as to have disorganized the whole of one lung and a fourth part of the other, had been healed."

The next paper consists of "*Observations on some of the Forms of Atrophy of Bone*, by THOMAS BLIZARD CURLING."

The term Atrophy is here applied to "all those changes (in bone) evinced by loss of substance, unaccompanied by any alteration in texture or organization, and without any reference whatever to the morbid action that produces it; since, in the majority of cases it is impossible to determine with accuracy whether the loss is the result of increased absorption or of defective nutrition. . . . Atrophy may occur in bones generally, or be limited to certain bones or to particular parts of bones." We need not allude to local atrophy as an effect of pressure. Atrophy may take place in a part or the whole of a bone, as a result of injury; so that, "without any evident alteration in external configuration, by a change affecting both hard and soft particles, the bone may be rendered smaller and of diminished weight." To this change our author applies the term *concentric atrophy*. The bones, as well as the soft structures, fade and waste away when their activity is diminished or their functions are suspended, *e.g.* bones of stumps after amputation, and those of ankylosed limbs. They waste likewise when deprived of nervous influence. It may be questioned, however, in the instances brought forward by Mr. Curling, how far the diminution of activity of the wasted limbs, and not the loss of nervous influence, was the cause of the atrophy. But the influence of the nervous system over capillary vessels is shown in a remarkable case recorded by Mr. Travers, "in which union between the ends of a fractured leg that was paralyzed from fracture of the lumbar vertebræ, failed to proceed; whilst the extremities of the humerus, fractured at the same time, united perfectly in the usual period."

Atrophy of soft parts is sometimes an effect of a diminution in the normal supply of blood; and Mr. Curling has adduced the following curious examples of a similar effect produced by a similar cause in bone. Nutrition is maintained in the long bones by the vessels passing from the

periosteum and the proper nutrient vessels of the bone. It occurred to Mr. Curling that, in fractures of such bones, one part must have the supply which it derives from the nutritious artery entirely cut off; and, although both orders of vessels freely communicate with each other, yet the minute canals, through which the external or periosteal pass, being of a dense unyielding nature, these vessels must be prevented from undergoing that rapid increase in size which in the soft structures constitutes so efficient a provision for a due circulation. Mr. Curling accordingly examined sections of fractured cylindrical bones, in order to ascertain if the ends which had been deprived of their normal supply of blood from the nutritious artery underwent a corresponding degree of atrophy. The result of the examination bore out his previous reasoning. In femurs fractured below the entrance of the nutritious artery, he found the interior cavity of the inferior extremity enlarged, the cancelli expanded and the walls thinned; a form of atrophy to which he proposes to apply the epithet *eccentric*. A similar alteration was also observed in fractured tibiae; whilst in the humerus, broken near the middle and somewhat above the entrance of the nutritious artery, the upper portion was the seat of this change.

This wasting is not *constantly* met with, and, if the above explanation be correct, it must not be expected, 1, in bones recently fractured; the process of atrophy being gradual: 2, In bones long united; because of the establishment of a collateral circulation; but, in old persons, and in those of weak powers, the circulation may never be completely reinstated, in which case the atrophy will be permanent: 3, In bones fractured during the period of growth. In proof of the fact, that atrophy occurs in the portion of a fractured bone from which its normal supply of blood is cut off, Mr. Curling refers to specimens in most of the museums in London; and he considers them as sufficient to prove that the *eccentric* atrophy was not accidental, but dependent on some uniform cause. The atrophy of old age, Mr. Curling states to be chiefly *eccentric*. Under the same kind of atrophy is here included the disease termed *molities ossium*; which Mr. Curling concurs with others in regarding as the result of defective nutrition. He has presented a table of all the known cases which he has been able to find of this disease; which, together with some observations, may assist any one who is desirous of investigating the difficult subject of the pathology of this disease.

Mr. BIRCH next terminates the history of a case commenced in the thirteenth volume of the Society's Transactions; and the present concludes by the relation of an instance of *complete Recovery after the Removal of a Portion of Lung which projected from a Wound in the Thorax*; communicated by WM. FORDE, Esq.

Our readers will not fail to observe that this last publication of the Medico-Chirurgical Society is, on the whole, a valuable one; and we doubt not that, under its present management, it will continue to supply the profession annually with new and important information.

ART. X.

Ueber die anwendung der Ligatur an einer von der Wunde entfernten, dem herzen zugewendeten stelle der verwundeten Arterie oder des entsprechenden Arterienstammes. Ein Beitrag zur Therapie der traumatischen Blutungen von KARL JOSEPH BECK, M.D., Professor der Chirurgie, &c. in Freiburg, &c.—Freiburg, 1836.

On the Application of the Ligature to Wounded Arteries, or their Trunks, at a Distance from the wounded Part and nearer the Heart. An Essay on the Treatment of Traumatic Hemorrhages. By K. J. BECK, M.D., Professor of Surgery, &c. at Freiburg, &c.—Freiburg, 1836. 8vo. pp. 79.

THE readers of this little work will find that it has no pretensions to novelty, either as regards principles or practice; nor, indeed, does the author claim any such distinction for it himself. It is, nevertheless, well worthy the perusal of the surgeon; since, among the cases here enumerated, he will find a precedent for almost every variety of wounded artery which can possibly occur to him in his practice; and the reasons which are given for preferring certain modes of treatment in certain cases, are at once sound, judicious, and obvious to the understanding. They involve no new theory, but are in strict accordance with well known and acknowledged principles of surgery. When the result of experience is thus brought to bear upon principles respecting which there can be no dispute, rules may safely be established which are entitled to our confidence, and which may be followed with every reasonable anticipation of success. If we have any fault to find, it is with the general tenour of the volume, and the strong predilection which the author has evidently conceived in favour of one particular scheme of practice, which, although it has its advantages, and is often indispensable, yet is not without its dangers; and to these he makes no allusion. We shall lay before our readers a brief analysis of Dr. Beck's book, confining ourselves within those limits indicated by the title, viz. the arrest of arterial hemorrhage by ligature.

The views and object of the Doctor's enquiry are thus stated by him.

"The mode of arresting hemorrhage, under certain circumstances, may be considered as one of the most difficult problems which science is called upon to solve. The solution is, indeed, easy when the bleeding vessel is superficial; when the hemorrhage is evidently caused by the mechanical injury and lesion; and when there exists neither physical nor structural deviation from the healthy normal state, either as regards the vessel or the surrounding parts. But, when the source of hemorrhage is so deeply seated that it can neither be ascertained with certainty nor brought into view; when the depth of the injured parts and the importance of the superjacent structures render a direct exposition either arduous or impossible; in such a case are we likely to find ourselves embarrassed by the difficulties which present themselves, and the uncertainty of the result. The operation necessary to lay bare the wounded vessel may be highly injurious, and the difficulties to be anticipated in the execution of our object may excite such well-grounded fears for the safety of the parts,—even for the life of the patient,—as to render the project of a direct exposition untenable. Thus, under circumstances when death can only be averted by prompt, judicious, and decisive measures, it may happen, from the peculiarities of the case, that the surgeon finds himself involved in doubt as to whether he shall secure the vessel at the wounded part, or apply his ligature at some

point above the seat of injury, i. e. nearer the heart; or else tie the parent trunk from which the wounded branch is given off. On this subject I shall endeavour to lay down decided rules for practice, founded on my own experience as well as that of others." (P. 1.)

Two modes, therefore, of arresting hemorrhage by the application of a ligature present themselves to the surgeon. He may secure the artery at the seat of injury, in which case a ligature should be placed above and below the opening in the vessel; or he may tie the artery, or else the parent trunk, at a distance from the original wound. The first of these methods may be called the *local*, the second the *remote*, application of the ligature. To regulate his choice in the adoption of one of these two methods, under existing circumstances, is the object of Dr. Beck's enquiry.

The application of the local ligature is doubtless the most obvious, the safest as regards the result, and therefore the best; but there are many cases in which collateral circumstances render its adoption inadmissible, and then the remote ligature must necessarily be had recourse to.

"We have both authority and experience to justify us in considering the remote ligature as an efficient means of arresting hemorrhage. Under certain circumstances, it presents the only method which can be adopted, and in some rare instances it is even preferable to the local ligature." (P. 16.)

We will now proceed to enumerate what these various circumstances and conditions are, which, in Dr. Beck's opinion, render the application of the remote ligature advisable, if not necessary: or, in other words, which render it impolitic or impracticable to secure the artery at the wounded spot.

They are arranged in the following order:

Rule 1st. When the vessel which is apparently the source of hemorrhage is so deeply situated and concealed as to preclude the probability of its being effectually exposed: we may also add those cases of secondary bleeding, where, either because the process of healing is already advanced, or where, from any other circumstance, it does not appear expedient to reopen the original wound." (P. 24.)

Under this head are included those cases where the exact source of the hemorrhage cannot be readily ascertained; when the deep seated mischief does not correspond in situation with the external wound, and the direction of the latter is uncertain; where the wounded artery is placed between or in the neighbourhood of bones which it would be inexpedient to lay bare; or when the superjacent parts are of too great importance to risk their disturbance or division.

A number of cases are *detailed* to illustrate the above rule. We abridge the following, which occurred in the author's own practice. The first affords a useful example of bad surgery.

CASE 1. A young man received a sword-wound in the middle of the thigh, followed by profuse arterial hemorrhage, and accompanied by internal effusion of blood. It was impossible to ascertain whether the femoral or profunda artery, or both, had suffered. The wound was enlarged and explored, but without success. The femoral artery was then cut down upon, and secured, in the ordinary manner, at the junction of the upper with the middle third of the thigh. The next day the bleeding returned, and the whole limb had now become immensely swollen, besides being in a state of acute inflammation. A second ligature was applied round the femoral at Poupart's ligament; but, although this proved

effectual in preventing the recurrence of hemorrhage, the patient sunk exhausted, and died on the third day. We must, in justice to Dr. Beck, observe, that, although he was the operator in this mismanaged case, he acted under the control of higher authority, and contrary to his own expressed judgment. The two official personages, bearing the titles of *Gerichtsärz*t, and *Geheimer Hofrath*, must share the blame between them.

CASE II. A boy, seven years old, ran a penknife into his thigh, which apparently pierced the femoral artery just as it enters the popliteal space: the blood gushed from the wound, and considerable swelling from internal effusion soon manifested itself in the ham. Pressure at the groin commanded the hemorrhage. The femoral artery was tied in the usual situation with complete success.

CASE III. A man, aged twenty-seven, received the contents of a gun, loaded with large shot, in the back of his thigh, inflicting twenty-eight wounds between the buttock and the knee: three of the shot had traversed the limb, and passed out on the fore part. Much blood was lost at the time, and the limb became swollen. Five days afterwards, a small fluctuating and pulsating tumour made its appearance on the anterior part of the thigh, at the junction of the middle with the lower third, and in the situation of the femoral artery. This was treated by pressure, but continued to enlarge; and, in five days more, ulceration of the skin took place, followed by considerable hemorrhage. As the site of the swelling indicated that the femoral artery itself, or an important branch, was wounded, the former was exposed, and tied just above the middle of the thigh: the tumour was then laid open, and the coagulated blood removed. The case terminated successfully.

Many other cases, collected from the best authorities, are also brought forward by Dr. Beck, and tend greatly to establish the validity of the rule which he has laid down. It occasionally happens that hemorrhage supervenes, unexpectedly, several days after the receipt of the injury, and when the granulating process has completely altered the original character of the wound, and afforded a well grounded anticipation of safe and speedy recovery. In such cases, the remote ligature is our only resource; and Dr. B. brings forward several instances in which it was successfully applied. We have ourselves seen the femoral artery tied for the purpose of arresting secondary hemorrhage from the stump of an amputated limb. The success was perfect; and we have seen the same treatment, with a similar result, adopted in cases of simple and compound fracture, which were followed by the formation of aneurism in the one instance and by external bleeding in the other. We have no hesitation in saying that, when some days have elapsed after amputation, it will generally be found far preferable to use the remote ligature, than to reopen the flaps of the stump, and search for the wounded vessel.

Rule 2d. "The remote ligature becomes necessary when such an altered condition of vitality and structure has taken place at the seat of injury as to render the local application of the ligature unsafe." (P. 24.)

It frequently happens that the primary hemorrhage from a wounded artery is repressed by pressure; the wound and the surrounding parts become filled with a temporary coagulum, which is effectual for some time in closing the opening of the vessel. Inflammation, however, supervenes; suppuration, or perhaps partial gangrene, according to the

nature of the injury, become established: the clots separate, the artery is laid bare, and secondary bleeding ensues. Under these circumstances, Dr. Beck strongly reprobates the attempt to secure the vessel at the original seat of injury; not only because great difficulties will be experienced in the operation, but chiefly because the coats of the artery will have participated in the surrounding disease, will have become altered in structure, and lost the capability of taking on that healthy action, which, under the application of the ligature, is necessary for the sealing up and obliteration of the vessel. Several cases are cited to shew the advantages and success of the remote ligature under circumstances of this description. The same rule will likewise apply in those cases where an artery becomes opened by a process of ulceration, in consequence of malignant disease, abscess, or necrosed bone.

† *Rule 3d.* "The remote ligature is generally necessary where the injury has involved the entire destruction of the artery." (P. 24.)

We do not think that the author has rendered his subject clearer or more explicit by laying down this rule. By the term *destroyed* (*zerstört*,) we presume is meant the entire removal or total disorganization of a portion of the cylinder of the vessel. Now, unless the artery has become exposed by the original injury, it is impossible for the surgeon to ascertain whether it has become completely destroyed or not; and thus the circumstances under which he is placed differ little from those which have already been discussed. Should the original injury present the artery to our view, torn through, bruised, or lacerated, it would certainly be advisable to follow the exposed extremities of the vessel from the wound, until we reached a spot where its walls were sound, and the ligature might be safely applied. If, however, such a proceeding should be considered as incompatible with the safety of the surrounding textures, then the remote ligature must be had recourse to.

Rule 4th. "When a considerable number of arteries are wounded, it may be necessary to apply the remote ligature to the common trunk from which they arise." (P. 24.)

A number of cases are brought forward in illustration of this position, such as punctured or incised wounds about the upper part of the neck, penetrating under the jaw, and involving the branches of the external carotid. In these the common carotid appears to have been tied with a successful result. Under this head are likewise included wounds of the palm of the hand, dividing the palmar arch, or the branches which it gives off. These are by far the most interesting to the surgeon, as they are accidents of constant occurrence, and often occasion not a little embarrassment. The communication is so free in the hand as to render it highly advisable that the vessels should be secured at the injured parts, in order that both ends may be tied; and certainly, when the injury is recent, where the wound is extensive, the palmar fascia freely divided, and the parts beneath exposed to view, an attempt to discover the source of hemorrhage ought to be made. The parts, however, are seldom in this favorable condition. A small, penetrating wound has generally passed under the fascia; little or no help is afforded for ascertaining its direction, and the hollow of the hand is most commonly filled and distended with effused blood. It frequently happens that some days have elapsed

since the injury was received, and we find the whole hand swollen, œdematous, inflamed, and exquisitely painful. The patient has become exhausted by repeated losses of blood, and is suffering under a high degree of nervous irritation; all the symptoms, local and constitutional, having been aggravated by the application of styptics and powerful pressure for the purpose of checking the bleeding. Under these circumstances, there is but one resource,—that of tying either the radial or ulnar trunk, after having ascertained, by pressing alternately on each, from which of the two the hemorrhage proceeds. It may be necessary to secure both vessels. Dr. Beck seems to be altogether averse to local explorations in the palms, and instances several cases in which the ulnar artery was tied with success. Wounds of the plantar vessels or the arch in the sole of the foot are of very rare occurrence, and would hardly admit of any other mode of treatment than that of securing one or both of the tibial vessels.

Rule 5th. "The wound or division of an arterial branch, close to its origin from the parent trunk, may render it necessary to tie the latter." (P. 24.)

CASE VI. A young man received a wound on the inner side of the thigh from a broken glass bottle, which divided the sartorius muscle and extended itself as high as Poupart's ligament. Copious hemorrhage followed: the bleeding vessel could neither be detected nor laid hold of by the forceps, and the external iliac trunk was consequently tied. The patient died from pneumonia on the thirteenth day; and it was then ascertained that the external pudic branch of the femoral had been divided close to its origin. It is, therefore, evident that in this case the treatment of the surgeon was not founded on his knowledge of the precise nature of the injury. The original wound had evidently involved either the femoral or some of its branches, and he preferred tying the iliac trunk to making any farther search for the bleeding vessel. In this, and in some other parts of his book, Dr. Beck has somewhat complicated his precepts by the unnecessary subdivisions which he has pursued in their arrangement.

Rule 6th. "When internal bleeding takes place, in consequence of injury to an artery, unaccompanied by external wound, or when fracture becomes complicated with a similar occurrence, recourse should be had to the remote ligature." (P. 24.)

The first of these conditions belongs more properly to the history and treatment of aneurismal formations; the latter has already been noticed in a former part of our review.

We extract the concluding paragraph of the Doctor's book:

"The operation which has formed the subject of this treatise is generally followed by a surprisingly speedy change in the condition of the patient, which must prove very gratifying to the humane feelings of the surgeon. No sooner has the ligature been applied, than the mind of the sufferer, which had been kept in a continued state of alarm and distress by the repeated hemorrhages, becomes tranquillized. After the artery has been secured, the forcible compresses which were previously necessary can be exchanged for light and simple dressings. The pain, which was occasioned partly by the pressure, partly by the retained secretion from the wound, becomes diminished, inflammation is abated, a healthy suppurative action is established, and the gangrene is arrested; the patient begins to recover his powers, so soon as he is placed beyond the danger of future hemorrhage, and speedily loses

at blanched appearance which was indicative of a deficiency of blood in the stem." (P. 78.)

We have thus laid before our readers an abstract of Dr. Beck's essay, and have no hesitation in saying that he is entitled to the thanks of the profession for having, with considerable labour, brought together a number of highly useful facts and cases. Nevertheless, the sum of all that has been written and said on the subject of wounded arteries seems to resolve itself into this simple surgical canon.

In all serious cases of wounded artery, the application of a double ligature at the seat of injury must be considered (theoretically,) as the best and most efficient treatment; but, where this mode of proceeding is rendered inadmissible from the various circumstances and conditions which Dr. B. has enumerated, then the application of the ligature must be transferred to some spot between the wound and the heart, the surgeon having previously ascertained, with all possible accuracy, whether pressure on that part of the vessel fixed upon for the operation be efficient in commanding the hemorrhage. It is clear, therefore, that no definite rule can be laid down. A wounded artery may, in one instance, be easily tied bare and secured; while, in another instance, a wound of the same artery, in the same spot, may, from collateral circumstances, lead us to anticipate so many difficulties and subsequent dangers in attempting to expose the seat of injury, as shall induce us to adopt the more indirect method of the remote ligature. The surgeon must therefore be guided by his own judgment and discretion; but promptness and decision are indispensable. To protect his patient from a recurrence of hemorrhage should be his immediate object. The adoption of half measures and a palliative mode of treatment are inevitably followed by two evils, viz. the exhaustion attendant upon repeated bleedings, and the mischief resulting from extensive internal effusion. These conditions will react upon each other, to the detriment or destruction of the patient; for, in proportion as his powers are reduced, so will the probability of a successful result from an operation become diminished; while, at the same time, he is rendered less capable of undergoing the extensive suppurative process often necessary to get rid of the effused coagulum.

We must now bestow a few words of honest and impartial criticism on Dr. Beck's opinions, and also gently deprecate what we consider to be the general tenour of the book, and the impression which it is likely to produce on the mind of the inexperienced reader; not that we at all wish to impugn the truth of the individual maxims which it contains, but because we fear that the zeal with which he advocates the principle of the remote ligature has caused him somewhat to outstep the bounds of discretion in recommending its too indiscriminate adoption. Throughout the whole volume, the author evidently betrays his decided preference for securing the artery at a distance from the wounded spot. In every case of difficulty, he proceeds at once to the fountain head. To an accomplished anatomist and an expert surgeon, such a mode of treatment certainly presents great attractions, and offers a temptation which it may be difficult to resist; but we question whether Dr. Beck does not ride his favorite hobby a little too hard: we doubt whether the operation which he advocates is so infallible or so universally successful as he represents. He has certainly illustrated his opinions, and strengthened his posi-

tions, by a great number of successful cases, collated with much labour, and selected with considerable ingenuity; but we feel almost authorized to impute to him a certain want of candour, when he abstains from mentioning those unfortunate results which he must have met with in the course of his researches. We will not allude to the severity of a capital operation, (such as laying bare and securing a main artery,) nor the degree of risk attendant on it; but we would ask, is there no chance of gangrene to be anticipated from thus suddenly cutting off the supply of blood to an entire limb? Dr. Beck never so much as hints at the possibility of such a contingency, and yet we know that it does sometimes occur. We are perfectly aware that there are many cases in which we must incur the liability of future mischief to secure our patient from immediate destruction; but, at the same time, the surgeon should be made duly sensible of the responsibility which he takes upon himself, when he determines to turn the cock upon the main supplying a whole district, merely because one of the household service pipes has given way. We might also add that he must not consider himself already out of the wood, so soon as he has discovered the main road from which all the smaller paths divaricate. The very means which he has taken to accomplish his object of present security may not only prove the source of a fresh evil, but it may likewise altogether fail in the fulfilment of its original intention. He has broken the wheel at the fountain, the pitcher at the well; and the very treatment which he has pursued may prove mortifying (if we may be excused the term,) to his patient's limb, as well as to his own anticipations of success; while, on the other hand, the speedy re-establishment of collateral circulation, although it removes the danger of gangrene, may render his operation nugatory by affording a recurrence of the original hemorrhage. We have made these observations not with a view of opposing or controverting Dr. Beck's statements, but to shew that the application of the distant ligature does not at once place the patient beyond the pale of all possible farther mischief; that it should not be had recourse to on light and insufficient grounds. We would wish to shake that perfect confidence in its infallibility with which this book is calculated to inspire the mind of the young surgeon.

ART. XI.

A Clinical Treatise on the Endemic Fevers of the West Indies, intended as a Guide for the young Practitioner in those Countries. By W. J. EVANS, Esq. M.R.C.S.—London, 1837. Pp. 309.

INFORMATION relative to the natural history of malaria and its effects on the animal constitution, ought to possess great interest in the eyes of physicians of this country, comprising, as we believe it does, within its circuit, the colonies included, more noisome climates than are to be found within the territory of any other single power. Yet, probably because most portions of our home-territory are in general exempt from the very manifest operation of the poison, we know not any country in which the subject is more neglected than this. The compilation of Dr. Macculloch, though destined for the home-market, was not received with the attention which, diffuse and often ill reasoned as it was, it merited; and we believe

that an acquaintance with the most valuable works in which the operation of malaria is traced, from those of Cleghorn and Pringle to the more recent productions of Drs. Jackson and Ferguson, is confined almost exclusively to practitioners connected with the public service. As a consequence of this when, in a season unusually moist and warm, the ordinary effects of malaria are manifested, confusion, embarrassment, and controversies among private practitioners are the result. We speak of what we have ourselves observed.

It is then with a feeling of the importance of the subject to every British practitioner, that we crave the attention of the reader to the work of Mr. Evans, the result of many years' observation of the diseases occurring in one of the most unhealthy of our colonies, St. Lucia. He is a practical writer, and, though he bestows all the attention they merit on the experiments of MM. Julia and Vauquelin on the intrinsic nature of malaria, he finds them, as others had done, inconclusive, and proceeds to the investigation in a manner more likely to elucidate the truth, by comparing the effects of the poison on the animal economy with those produced by substances such as putrescent matters, the operation of which can at any time be made the subject of direct experiment.

The first portion of the work is dedicated to a topographical description of the Island, which proves that it abounds in swamps well-suited under the action of a tropical sun for the generation of malaria. The following is his description of the mud found in one of the most virulent swamps in St. Lucia, which immediately adjoins the principal town, Castries.

"This swamp, for a foot or eighteen inches from its surface, is composed of a black mud of unpleasant smell, containing the leaves and small branches of the shrubs which grow out of it. Below this, to the depth of five or six feet, it is composed of a solid matter of a yellow colour, exactly resembling rotten horse-dung, containing some marine shells, and is principally formed of the fibrous parts of vegetables mixed up with animal matter. The odour emitted by this substance is indescribable, but disgusting in the extreme, producing a sweetish sickly taste in the mouth, pharynx, and upper part of the œsophagus, with a discharge of saline. A thermometer thrust into the sides of a canal five feet deep, rises rapidly to 100° and upwards; the temperature appears to be greater than that of any dunghill, and communicates a tingling unpleasant feeling to the hand. The vapour which arises from it is very evident, being opaque like smoke; and, though it fills the canal, ascends only to the height of four or five inches above the level of the swamp." (P. 11.)

There can be no doubt of the decomposition of vegetable and animal remains in such a situation as this; and the author, observing that swamps possess degrees of virulence proportionate to the quantity of organic matter they contain, is naturally led to retain the old opinion, which attributes the generation of malaria to the decomposition of such matter, and to reject that of Dr. Ferguson, which ascribes the origin of the poison to water during the process of drying; an opinion which we were always surprised to find so sensible a writer entertain.

We pass slightly over the author's natural history of malaria as he observed it at its sources in St. Lucia, and his very correct but by no means novel remarks on the mode of its diffusion, in order that we may give a farther account of the chapter, in which the 'physiological (pathological?) effects of the poison are described, regarding it as the most interesting portion of the work. In our analysis we shall aim at accuracy and condensation merely.

In the section where the effects of malaria on an *acclimated* population are examined, after giving a graphic sketch of the lymphatic or leucophlegmatic temperament so observable in the inhabitants of a malarious district in a temperate climate, and of that mixture of a similar temperament with great excitability of the nervous system, a combination of excessive indolence with love of pleasure, discernible in marshy regions between the tropics, he introduces some remarks on the diet to be observed in the latter situations. It is evident from his statement that persons who employ a nutritious diet, and drink a proportion of generous old wine, though subject to feverish attacks and affections of the abdominal viscera, escape the more wasting and destructive organic diseases to which the voluntarily abstemious and the poorer classes are exposed. An illustrative case is given, which will be read with interest.

The effects of malaria in a concentrated form are placed before the reader less in the shape of an abstract statement than in that of a case circumstantially detailed. A few of these we shall succinctly state. Two boatmen were hauling their boat up the beach, close to the most dangerous part of the swamp already mentioned as adjoining the Town of Castries, when they were speedily enveloped in a small cloud of vapour. One of them fell down apparently in a state of asphyxia, and the other was so affected as to be incapable of assisting him. The man most affected, after lying apparently insensible for some time, was led home, and in the course of the night was attacked with an intense ague. During the cold stage, the surface was chilled, the pulse was scarcely perceptible, and there was coma, interrupted by convulsions. In the stage of reaction the coma alternated with delirium; and there was vomiting of mucus, &c. with apparent pain, and shrinking and contortion of countenance when the epigastrium was pressed. The case was fatal in forty hours. The body was examined whilst warm; the blood was fluid, and a small quantity of troubled serum was effused between the arachnoid and pia mater; the lungs were somewhat engorged, and the stomach was intensely inflamed, containing about two or three ounces of blood. No account is given of the treatment adopted in this case, which was not under the care of Mr. Evans; so that we know not whether the plan of free bleeding during the cold stage, recommended by Dr. Mackintosh, was tried; but it would appear to us the only proceeding calculated to prevent the fatal effects of the interior congestions which were manifestly existing.

The following cases appear to us interesting as showing that those groups of external phenomena to which we give the name of diseases, how much soever they may differ among themselves, may yet have their origin in a common cause, and be but the outward and visible signs of interior conditions very closely related, if not identical with each other. The last cases, those of scarlatina, show moreover an important point of pathology, the great extent to which epidemic and contagious diseases are modified by the endemical influences of any given district. 1. Twenty-eight soldiers were employed by two planters to clear some land which was both humid and swampy. Within a week they were all brought to the hospital. Three of them died of *cholera morbus*, five of severe *dysentery*, and four of *adynamic fever*, in which the bodies became yellow and exhaled so infectious an odour that they could not be approached. The

remainder had malignant intermittents, and recovered with the greatest difficulty.

2. A number of negroes were employed to get afloat a vessel which had been cast by a hurricane fifty or sixty yards from the water's edge, near the swamp already mentioned. It was to be accomplished by cutting a canal from the vessel to the *Carenage*. They abandoned their work to a man, declaring they could not bear the stench. Eighteen foreigners, principally Spaniards and Portuguese, were then employed; but the undertaking was abandoned when nearly two-thirds finished, for want of hands. The men fell ill day after day, and the greater part of them died; the first complained of faintness and vertigo, then the feet and legs became inflamed, and the swelling and inflammation quickly extended above the knee; fever came on, and death ensued in two or three days.

3. The autumnal months of 1830 were remarkable for the dry and clear state of the atmosphere, and there was little sickness in the town, excepting an epidemic of scarlet fever; it was not severe, and yielded generally to very mild treatment. By some measures connected with the erection of a church in the centre of the above-mentioned swamp, not only were several acres of marsh exposed which were before covered twice a day by the sea, and therefore to a certain extent innocuous, but a certain portion of its very bosom was laid bare. The first effect perceived was the smell which expanded itself over a considerable portion of the town; the next was a sudden change which the epidemic underwent. The efflorescence, instead of scarlet, became dusky red, occasionally approaching to purple; the tonsils, mouth, and pharynx were intensely inflamed, and of a dark colour, as if falling into gangrene; the blood drawn from the arm was of a deeper colour than in health, and the crassamentum did not separate from the serum; the pulse was small and rapid; the meninges became affected, the patient fell into a low muttering delirium, and, in a space of time seldom exceeding three days, died. After death the blood was found fluid and the gastro-intestinal mucous membrane and meninges were inflamed.

There is a short section on the effects of the poison on inferior animals. We are surprised to find the author declare in this, that at St. Lucia the only animals, except man, affected by malaria are dogs; for, in this respect, that Island must differ not only from malarious districts of the European continent, but even from some of the adjacent West Indian islands. Epizooties among oxen, horses, mules, sheep, pigs, goats, and domestic fowls, have been repeatedly observed, during the prevalence of marsh fever in the human species, in Hungary, Italy, various parts of France, and likewise, as we learn from the indefatigable and accurate Bailly,* in Guadeloupe and St. Domingo. These epizooties often appear in the form of a very destructive anthrax; and in some of them, as in the case of the dogs in St. Lucia, the gastro-intestinal mucous lining is found intensely inflamed or even gangrenous, in oxen, cows, &c. Mr. Evans assures us that the affection observed by him in dogs may be either continued or intermittent. M. Bailly, on the other hand, informs us, that epizooties never display any degree of intermittence, which he regards as peculiar to the human species. The former gentleman states the follow-

* Sur les Fièvres Intermittentes Simples et Pernicieuses. Par E. M. Bailly, de Blois.

ing as the symptoms of the disease in the canine race in St. Lucia: eyes dull and heavy, tongue protruded from the mouth and white, quick respiration, and sleep apparently disturbed by dreams. When the poor animal is forced to rise and seek water, he trembles in his gait and seems to reel; and finally life is terminated by a convulsion. There can be no doubt of these symptoms arising from malaria, for they can be produced at will by confining animals, recently imported, for a few days within the action of the swamp. Dogs are imported in abundance, but few survive the first year.

After relating the experiments of Gaspard, Magendie, Leuret, and Hamont, in which putrid substances were injected into the crural veins or brought into contact with the cellular or serous tissue of dogs, and death ensued with alteration of the condition of the blood, and engorgement of the lungs or some portion of the mucous membrane, Mr. Evans proceeds to relate similar experiments of his own. The results correspond with those of the French physicians, and we think ourselves justified in assuming, on the part of our readers, such an acquaintance with experiments of this kind, as to supersede the necessity of more than this reference to those of Mr. Evans. His purpose evidently was to discover whether the action of malaria was identical with that of putrid matter, thus palpably and distinctly introduced into the system. Were this identity established, it would confirm the results of a very different class of experiments, those of MM. Julia and Vauquelin, who discovered a minute quantity of animal matter in the vapour of swamps. The author, however, very properly abstains from pronouncing that the diseased conditions arising from malaria, and those produced by the experiments of himself and the French pathologists, are the same. Cases of intermittent disease, for instance, have never been produced by the introduction of putrid matter into the circulation, and only a few extreme cases of natural disease bear any resemblance to the results of such experiments. Allowance ought, however, to be made, he thinks, for the coarse nature of the experiments, and for the absence of various circumstances which modify the natural disease. We agree with Mr. Evans that the parallel he has instituted between the two sets of affections, the artificial and natural, has not as yet furnished *decisive* results; but we think he deserves credit for having diligently pursued a path of observation, which seems calculated ultimately to lead to truth.

Passing over the chapter on the influence of heat, in which the author breaks a lance with Andral on the liquefying effect which the latter attributes to it on the blood, and another with Broussais and Dr. Stevens on its agency in producing fever, and leaving the reader to consult in the volume itself eighty-eight well-reported and valuable cases, we pause on the chapter on Pathology.

We cannot say that we have derived from its perusal very distinct ideas of the author's opinion on the abstruse questions discussed in it. He appears to us to float between two doctrines irreconcilably opposed to each other, and, like other individuals in doubtful and double positions, he falls into inconsistencies. He says, for instance (at page 203): "The symptoms peculiar to the endemic fevers of the West Indies are those known under the name of bilious; thirst; vomiting either of bile or of porraceous and mucous fluids; constant nausea; agitation; anxiety;

supination; frequent sighing and moaning; tenderness of the epigastrium; frontal headach; heat of skin; and quickness of the pulse. Do not these symptoms indicate a local origin, and that the stomach is the suffering organ? What is there deserving the name of *essentiality* about them, more than about those which accompany an inflammation of the pulmonary parenchyma?" Shortly afterwards, however, he remarks: "To this extent, therefore, I agree with the disciples of the Ecole Physiologique, that, where I can discover no other lesion than that of the mucous membrane of the stomach, I look upon the case and treat it as one of pure gastritis; but I differ from them in admitting the existence of a specific cause, *which*, though its *visible* effects in some cases may be confined to the gastro-enteric mucous membrane, *are* in the greater number of instances also observable either in the blood or in the nervous system, or in both." Now it does appear to us, as far as we can discern the meaning of this latter paragraph through the mist of its very faulty construction, that he admits in it the very "essentiality" which he had just before denied. There could be no reasonable objection, had Mr. Evans' opportunities of observation not enabled him to decide a controverted point of pathology, to his stating his inability to attain to a definite conclusion; but we cannot help censuring this apparent attempt at trimming and mystification.

The following is Mr. E.'s account of the lesions he discovered in twenty-six fatal cases. There was

"gastritis in every one of the twenty-six; enteritis in fourteen; the liver engorged in five; the gall-bladder inflamed in five; the kidneys inflamed, the inflammation occasionally extending through the ureters to the bladder, in three; pleuro-pneumonia in three; inflammation in the brain in three; meningitis in thirteen; change in the vital and physical constitution of the blood in eleven; inflammation of the lining membrane of the heart and large blood-vessels in two, in both of which the blood was fluid; complete *ramollissement* of the gastro-enteric mucous membrane, apparently produced by mercury, in three. Black vomit in five; in four the blood was diseased, in the other it appeared natural; in three it was accompanied with yellow suffusion. Yellow suffusion occurred in six, in all of which the blood was found changed; in three cases there was black vomit, in two the gall-bladder was found inflamed, and the orifice into the cystic duct almost impervious; in the other four the gall-bladder was healthy. Hemorrhage, blood fluid, in one." (P. 213.)

The following was the condition of the organs in eleven fatal cases, occurring in Europeans shortly after their arrival in the colony:

"gastritis in all the eleven; enteritis in six; liver engorged in one; inflammation of the gall-bladder in two; kidneys inflamed in two; spleen softened in one; œsophagus inflamed in two; softening of mucous membrane of the stomach and intestinal canal, apparently from mercury, in two; inflammation of the heart and blood-vessels in one; meningitis in four; blood diseased in one; black vomit in two; blood in the stomach in one; yellow suffusion in seven; hemorrhage into the cellular texture of the thigh, below the *fascia lata*, in one. It was in this last case that the blood was found diseased, and the spleen softened." (P. 214.)

On surveying these lists, the reader will be impressed with the fact, familiar to every observer of febrile diseases in tropical climates, that the abdominal organs are the principal seat of the local affections with which they are associated. We were not, however, prepared either by previous reading or observation, to expect that the sole invariable lesion discovered

should be gastritis. With the most perfect confidence in Mr. Evans' good faith, we cannot help feeling some doubt whether his mental view of the condition of the stomach has not been in some degree troubled by the semi-Broussaism, which is manifestly his medical creed. We are the more moved to feel this doubt, because he enters into a controversy with Dr. Gilkrest for "striving to combat the opinion that yellow fever is nothing but a gastro-enteritis." This gentleman, in the article on yellow fever in the *Cyclopædia of Practical Medicine*, makes the very reasonable remarks, that, in the first or congested form of the disease, "the stomach is free from what is admitted by the best authorities to be evidence of inflammation; mere redness, whether in streaks in various directions, or in stellated patches of various sizes, has been on several occasions remarked in the mucous membrane, in the same degree as it is observed to occur in chronic or other diseases, or in cases of accidental death, where there is not the remotest suspicion of gastritis. Spots of a purple colour are much more common than those of a bright red; a perfectly pale state of the membrane is far from being of a rare occurrence." We cannot help thinking that, had not Mr. Evans' mind received a bias in favour of a gastric theory of endemic fever, he would have acquiesced in the reasonableness of these observations of Dr. Gilkrest, rather than controverted them; and a perusal of his own description of the appearance of the stomach, detailed and graphic as it is, has not convinced us that the redness he describes has not in some instances been the result of passive congestion, even during the agony. He places too much reliance on mere vascularity and likewise on mucous secretion as evidences of gastric inflammation. (See our notice of Dr. Yelloly's paper, *ante* p. 138.)

Mr. Evans' practical precepts for the treatment of the diseases of the West Indies display a discrimination of the circumstances demanding the employment of powerful remedies which is creditable to his judgment. Had his rule for resorting to bleeding in the cold stage of intermitten been more nearly approximated to than it has been, we think that this remedy would have ranked higher in public esteem than it does. He considers a degree of congestion of internal organs inseparable from the cold stage of an intermittent, and does not resort to bloodletting when such affection may be considered as existing only to the natural extent "Should," however, "the patient become apoplectic, or should the stupor be profound and accompanied with convulsions; should the difficulty of breathing be considerable and threaten suffocation, or be performed only in a sitting posture; should the sub-crepitating *râle* be diffused over both lungs, and the sound on percussion be duller than usual we must resort to prompt and energetic measures; to bleeding from the arm to an extent proportionate to the urgency of the symptoms and the strength of the constitution, to cupping near the organ affected, &c. We agree with the author that bloodletting is not requisite in an ordinary cold stage; but we think that degrees of cerebral and pulmonary congestion much slighter than he has described would demand this measure.

We do not deem it necessary to transfer to our pages the author's opinion regarding the treatment of every form of the endemic fever he observed, our wish being that such of our readers as either at present feel or are likely to feel, the subject one of direct interest, should consult the work itself. Our own experience of the diseases of warm climates lead

us to acknowledge the general prudence and sagacity of his practical precepts. Were we disposed to express any doubt or dissent, it would be in the case of what he calls continued inflammatory fever, which he says has been termed gastritis, gastro-enteritis, gastro-meningitis, gastro-enterite *inflammatoire* (evidently a redundancy), inflammatory yellow fever, &c. In this disease, he says, "We bleed largely, to the extent of thirty ounces, more or less, according to the constitution of the patient; we place him in a tepid bath, and return in a couple of hours. If the patient has vomited during the interval, if there remains the slightest pain on pressing the epigastrium, if the head be not relieved, or if there be any sense of heat or burning in the stomach, we repeat our bleeding: we then apply leeches to the epigastrium should they be necessary; but in general if any gastric affection remain after the second bleeding towards the close of the first twenty-four hours, we repeat it a third time, and apply the leeches afterwards." He subsequently says, "the disease may continue either in consequence of our efforts not having been sufficiently energetic, or because we have combined them with others which have counteracted the good effect which we might have otherwise obtained. I mean calomel and purgatives. The British practitioner is haunted with these medicines." We must of course speak with diffidence of the disease the author observed at St. Lucia; but if such rules are intended to be applied to yellow fever in general, we must be allowed to intimate to him that his method, both as to the amount of bloodletting and his total abstinence from calomel, is at variance with that suggested by the best authorities on this subject, British and American, unquestionably the most experienced and energetic practitioners who have dealt with this disease. We are perfectly ready to admit that calomel and purgatives have been abused by certain physicians; but, on the other hand, we have seen abstinence from these measures converted into a much greater abuse; and have witnessed more misery and waste of life from leeches, gum-water, and costive bowels, than from any degree of purgation. How long will medical men persist on thinking that, if any given proceeding be wrong, its directly opposite must necessarily be right?

We now take leave of our author by recommending his work to general perusal, thinking it a valuable one, though we have not hesitated to offer occasional (we trust candid) comments on certain points of doctrine and practice it contains, which we consider of a questionable nature. We think his opinions have received a tinge from long residence among French colonists, and must take the liberty of intimating to him that his style has not escaped the infection, for there are several *gallicisms* in it. The word "report," for instance, occurs more than once in the sense of relation or connexion between objects, a meaning which the French "rapport" has, but which the English word has never yet borne. Perhaps, by way of compensation, his French is occasionally *anglicised*, for (page 304) we have "*inflammatoire*" for "*inflammatoire*."

Mr. Evans's, however, is a very good book; and, when compared with all the books on the subject of West Indian fever, which were in existence some thirty years since, when we had particular occasion to search for such works, it affords a most gratifying proof of the great progress of medical science in modern times.

ART. XII.

Chirurgische Kupfertafeln, zum Gebrauch für practische Chirurgen.

Herausgegeben von DR. ROBERT FRORIEP, Professor an der Universität Berlin, &c.—Weimar, 1836.

Surgical Copper-plates, for the Use of Practical Surgeons. Published by Dr. ROBERT FRORIEP, Professor in the University of Berlin, &c.—4to. Weimar, 1836.

THIS is a work of much labour and considerable merit. It contains an elaborate series of surgical illustrations, in part original, in part supplied by eminent surgeons, or compiled from their treatises. The choice of subjects it embraces, so far as it has proceeded, is judiciously made; and the accompanying delineations are faithful and graphic.

Endowed with an unwearied spirit of research, gifted with an eminent talent for design, and occupying a situation, as *prosector* at the Charité, where the most ample scope is afforded him for pathological investigation, the editor is qualified in a peculiar manner for such an undertaking as the one before us. It were superfluous to add our persuasion that, under such auspices, the work, when completed, will constitute a valuable source of reference for the practical surgeon.

Seventy parts have already made their appearance, each containing five copper-plate engravings and about thirty pages of explanatory text. We shall here give some account of the most interesting papers contained in the last four numbers, now before us.

Under the head of *Incarceratio interna*, a remarkable instance of ileus, caused by simple pressure of a diverticulum upon the bowel, is described. The description is elucidated by an annexed sketch of the state of parts on cadaveric inspection; and the whole forms a valuable addition to the important memoir of Professor Rokitsanski in our last number.

When a diverticulum is adherent to the umbilicus, or to any other point within the abdominal cavity, it may then give rise to strangulation. For, if a portion of intestine happen to slip beneath, it will suffer constriction and become strangulated, as occurred in the cases which have been recorded by Sandifort and Eschricht. But that by the mere tension of a diverticulum, of which the extremity had become attached to the abdominal parietes, the portion of small intestine over which that passes can be contracted to such a degree, that the propulsion of its contents is no longer possible, and a fatal ileus the consequence, is a circumstance hitherto nondescript. A case of this kind, however, presented itself to Dr. Froriep in the Charité at Berlin. The subject was a young man, aged twenty years. He was somewhat suddenly attacked with urgent symptoms of inflammatory ileus, which proved fatal in about eight days. On examination after death, Dr. F. discovered that the ileus had been occasioned by the mechanical obstruction of a certain part of the canal of the small intestine, caused by the compression of a diverticulum attached to the free border of an intestinal fold; which latter, up to its mesenteric attachment, was flattened in shape. The coarctation of this fold of intestine lying between the mesentery and diverticulum, was to be explained only on the mode of attachment of the diverticulum to the abdominal wall. Since neither the mesentery behind, nor the diverticulum

t, were coherent, the portion of the alimentary canal intermediate
t put upon the stretch, and therefore could not be closed in that

came a question in what way had the point of the diverticulum
thus attached to the abdominal parietes? Now, this may be
d in one of two ways. In general, diverticula present a smooth,
d-off, free extremity, without any string-like prolongation. Some-
again, a ligamentous cord proceeds from the diverticulum to the
l surface of the umbilicus, and is firmly united to the umbilical
. It has been long since ascertained that this cord-like appendix
ly the remains of the *vasa omphalo-mesaraica*. This mode of
ment of a diverticulum may be considered as a congenital malfor-

the result of an interruption in the formative process. Here, of
ty, the cord is always identified with the navel. Or, secondly, we
ceive, the loose and floating round extremity of the diverticulum
been attacked with inflammation, and the product of coagulable
thence resulting, to have determined its cohesion with some point
eritoneum; as was really the fact in the first case mentioned by
ht. The case here recorded by Frieriep is to be reckoned as one
red nature, partaking of both the above conditions. There was,
obability, a diverticulum present, to the end of which, as has been
nes observed, a ligamentous cord was appended, one inch in length
merly unconnected to any other part. The free extremity of this
a process of inflammation, become at some former period firmly
d to the serous envelop of the abdominal walls.

point of practical importance in the present enquiry is, that, inde-
tly of violent inflammation, of intussusception or incarceration, a
us can result in consequence simply of the flattening of a fold of
e from the compression exercised by a tense ligamentous band
ng across it.

e 346 exhibits the delineation of a permanently contracted
on of the knee-joint, depending on a cause hitherto undescribed.
re Dupuytren demonstrated that the retraction of the fingers
y they were gradually bent in towards the palm of the hand, and
that position, was the consequence of a gradual shortening of
mar aponeurosis, it was believed by surgeons that this curvature
fingers was occasioned by retraction of their flexor muscles; and
ctice was to cut across the tendons, and to leave the patient with
l just as impotent as before the operation, until Dupuytren suc-
in restoring the original freedom of motion to the hand, by simply
g the integuments and immediately subjacent ligamentous bands,
pass from the palmar aponeurosis to the phalanges and skin
ng the fingers.

n a survey of Dupuytren's researches on the subject, it occurred to
. Frieriep that the same principle might with propriety be extended
ar muscular contractions, to prove that the resulting deformity in
nt articulations did not proceed from the muscles, but from the
rotic envelopes of such joints; and, with this object in view, he
d particularly those instances of permanent contraction of the knee-
n which the shortening of the limb could not be imputed to cic-
or other organic changes in the parts constituting the articulation,

or in its vicinity. Such cases are not rare. When they occur, it is commonly found that the leg forms a right angle with the thigh, and allows of no farther extension or flexion. The occasional cause of this variety of stiff-joint is, according to Dr. F., most frequently a carious ulcer on the back of the foot or upon the anterior aspect of the leg over the tibia; sometimes, however, it is a superficial sore in the vicinity of the ankle, or about the fibula, oftener chronic neuralgic affections of the lower extremities; on one occasion, it seemed to depend on a rebellious ulcer near the sacrum, and once on psoas abscess. A remarkable example of this kind occurred in a child labouring under *hydrorachitis congenita*, in whom both knee-joints were inflexibly retracted, without the presence of inflammation or any organic alteration in the contiguous parts. On every occasion the muscles leading to and from the part were scrutinized, yet no permanent contraction could ever be detected in the flexor muscles of the ham or leg; on the contrary, their fleshy bellies were soft and relaxed. But, on attempting to extend that portion of the *fascia lata* which encloses the popliteal space, it was found to be excessively strained and tense, and it was easily recognized that this tension was not prolonged either upwards or downwards to the muscles. Another alteration in the knee joint observed in some of these cases was an apparent acuminated form of the knee, which always presented itself on every forced extension of the limb, although quite the reverse might have been anticipated from that movement. On careful examination, it was observed that the soft parts upon the lower margin of the patella were drawn by the above motion somewhat inwards, whereby the knee-pan seemed to advance forwards, and so render the knee more pointed than natural. It was also seen that the skin and cellular tissue in the neighbourhood of the affected joint were not more firm or tense than usual, nor indeed changed in any respect; but that the mass of muscles belonging to the thigh and leg appeared less voluminous than natural, in consequence, no doubt, of the protracted inaction of the member.

Three cases are adduced in corroboration of the principles above enunciated. They clearly show that the contraction of the joint was to be ascribed neither to muscles nor tendons, but to some modification in the ordinary relations of the *fascia lata*, and its processes to the parts they surround. This change in the ordinary relations of that membranous investment without a coexisting organic alteration in its texture is to be attributed to a peculiarity existing in ligamentous tissues generally, and which has not heretofore met with the attention it deserves. This consists in their possessing more than any other texture the property of adapting themselves with exactitude to the parts which they enclose, although such a result should not at first sight be anticipated in consequence of their stiff and unyielding nature. It might be thought that the skin and cellular substance were endowed with this property in a more eminent degree than the above tissue, but such is not the fact. The skin is certainly capable of considerable extension, as is seen where the volume of parts embraced by it is augmented. It does not however contract in like proportion when the bulk of subjacent parts is diminished. Hence the skin, under these circumstances, as in persons who from being stout have become lean and emaciated, is found to be loose and wrinkled. On the other hand, the cellular substance is susceptible of contracting again

upon the decrease in bulk of organs invested by it. It commonly, however, undergoes, during a long-continued process of enlargement in organs, not merely a simple extension, but becomes at the same time thickened, and more or less altered in its physical characters. With aponeurotic membranes these effects never occur. The aponeuroses mould themselves, as it were, in extent and form to every change which parts involved by them experience, and that without any mutation whatever in their structure, provided adequate time is allowed for their distention. On this principle, we may conceive, how a joint maintained for a long time in a state of quiescence in one uniform posture may become permanently fixed, and that without the supervention of pathological alteration in any part. For, the investing aponeurosis, which in virtue of its fibrous fasciculi retains its normal firmness and inelastic nature, adapts itself with much precision to the bent knee-joint; becoming ere long contracted on the concave and stretched out upon the convex side. It constitutes, moreover, a dense capsule, which acquires the form of the flexed articulation, and precludes the possibility of the contained parts assuming any other position.

There are two modes of treatment by which this deformity may be corrected; one, is to incise those portions of the aponeurosis which oppose extension in consequence of their contraction and firmness; the other mode requires us to modify the local condition of the aponeurotic membrane, by means of a sustained and gradually increasing extending force which shall subdue the preponderant power of the aponeurotic fibres. This done, they will, in virtue of their inherent pliability, accommodate themselves once more to the straight position of the limb. The first, or Dupuytren's method is indicated in the instance of permanent contraction of the palmar aponeurosis, where it is of importance to gain time, and where indeed a long-continued extension would be difficult and generally speaking impracticable. In the case of the knee-joint, however, extension can be well and beneficially applied. It is true, that by a simple and safe operation, namely, division of the intermuscular aponeurosis at the lower extremity of the *linea aspera* of the femur, the limb can be straightened. Yet, experience has proved that the same end can be effectually accomplished by properly adapted mechanical contrivances, (as the apparatus of Lafond,) at the expense of a little time. When the limb has been thus brought into the straight position, passive motion is to be enjoined, to restore suppleness to the joint.

In the 70th Number, we find also a description of a *novel* variety of palmar contraction of the fingers.

The author allows that the ordinary efficient cause of contractions of the fingers assigned by Dupuytren, namely, "cicatrices in the skin of the volar surfaces of the fingers," is not only admissible, but highly appropriate where the cicatrix is of considerable extent, and supplies the place of lost skin along the whole internal surface of a finger; as occurs after burns and contused wounds. The author finds it difficult, however, to explain those cases, by no means rare, wherein, after a mere simple incised wound in the cutaneous integument of the flexor aspect of a finger, which heals by the first intention, leaving a faint linear scar, permanent incurvation of the finger ensues. The difficulty is commonly got quit of by referring it to division of the flexor tendon; that position is,

however, untenable, when the lesion is confined to the surface, and the energy of the flexors is preserved; as demonstrable by the circumstance of the distorted finger still retaining its prehensile power. Moreover, if such incurvation be regarded as the consequence of section and functional interruption of the flexor tendons, it is plainly incurable, and ought to be let alone. If, again, it be ascertained that the tendon is unimpaired, it may naturally be asked, 1st, how comes it that incurvation should follow a simple cut on the palmar aspect of a finger? and, secondly, how can such incurvation be remedied?

While the author was endeavouring to solve these questions, an opportunity was afforded him, in the course of last summer, for their practical investigation. A young female died in the Berlin hospital, having an incurvation of the little finger of the left hand. The curvature was such, that the finger permitted only partial extension, while it could be freely bent without difficulty. On forcible extension being made, the soft parts constituting the first phalanx assumed a stringy aspect, (as in palmar contraction;) on carefully examining the surface of the finger, the dorsal aspect appeared normal, but on the flexor integument a fine scar was perceptible, running obliquely from within outwards from the second to the beginning of the first phalanx.

The author gives the following results of his researches.

"(a.) That the cicatrix expanded itself under the delicate cutaneous investment, and occupied the place of the adipose cushion of the first phalanx; but at the same time was intimately incorporated with the enveloping tendinous fibres of the *ligamentum palmare longitudinale* on both sides of that cushion. (b.) That the *ligamentum palmare longitudinale* itself, from the anterior margin of the proper palmar aponeurosis, was greatly, and in the vicinity of the cicatrix more than doubly, thickened, notwithstanding the tendinous longitudinal fibres were normal, between which the grey transparent texture of the cicatrix was apparent. (c.) That the contraction of this thickened palmar cord operated precisely as in the ordinary palmar contraction described by Dupuytren, but, owing to the relaxation of the proper palmar aponeurosis, in a less eminent degree; that from the cicatrix, and from the ulnar margin of the condensed palmar cord, tendinous lines of the nature of cicatrix proceeded backwards to the ulnar side of the first finger-joint, continuously as far as the *aponeurosis manus*, where it covers the abductor minimi digiti, and at the same time connected with the lateral digital aponeurosis. (d.) That, lastly, the fore-mentioned lateral digital aponeurosis (the continuation of the *aponeurosis manus*,) was equally thickened, elevated and shortened by the substance of the cicatrix, and by itself capable of effecting a moderate incurvation of the finger."

Hence the author establishes the fact, from elaborate dissection, that, in this case, there was indeed a palmar contraction present; not however dependent on contusion or pressure, as maintained by Dupuytren, but on inflammatory irritation consecutive to incision. From this it follows that the answer to the second question, or the suitable means of cure, is the division of the palmar cord; an operation first proposed by the above-named surgeon. The mechanism of the contraction is fully displayed in the figures of Plate CCCLVI., to which the reader is referred.

The 69th and 70th Numbers of Dr. Froriep's work contain some important observations upon "Induration of the *tunica vaginalis testis*." It is a well known fact, that simple affections of this nature have been mistaken for those of a malignant type, by surgeons of repute. Hence, grave

operations have been resorted to, where a mild treatment would have sufficed. Delpech, in particular, sanctioned the error; and Dr. Froriep has been at great pains to show the fallacy of the views entertained by that eminent writer concerning this subject. An excellent opportunity was afforded, a few years back, of investigating the true pathological condition of the parts in a case where castration had been (*needlessly*) performed by a distinguished surgeon of another country. In this case, the author found the glandular substance of the testicle perfectly sound, the tunica albuginea unaltered, but having upon it a stratum of a white firm substance, of from one to one and a half lines thick, enveloping the entire testicle. No further examination was instituted.

Since that occasion, the author has directed his attention to similar cases, and at length ascertained that chronic irritation, associated with the distention caused by a hydrocele of long standing, gives rise to three forms of exudation in the substance, or what is commonly designated the external surface of the *tunica vaginalis propria testis*, which is applied to the *albuginea*. The lymph becoming organized, constitutes three different varieties of thickening. When chronic irritation produces an exudation of lymph and consequent augmentation in volume of the original textures, this is usually termed, (as, for example, in the cellular tissue,) *induration*; and with this meaning affixed to it, the author proposes to indicate thereby, the following varieties of alteration in the *tunica vaginalis*: 1. Induration of the *tunica vaginalis reflexa* alone, or the ordinary form of condensation of the membrane lying beneath the *tunica vaginalis* and cremaster. 2. Induration of the *tunica vaginalis inversa testis*, or exudation betwixt the *tunica vaginalis* and *albuginea*. 3. Induration of the entire *tunica vaginalis* (both *reflexa* and *inversa*), or condensation thereof, as well beneath the *tunica vaginalis communis* and cremaster, as in the *albuginea testis*. The last two of these forms, not heretofore distinctively described, are illustrated in the work before us, by cases and coloured plates.

1. Condensation of the *tunica vaginalis reflexa* alone is remarkably frequent, but seldom suspected to be present. An analogous thickening is always observed in serous membranes, when a portion has for a long time sustained considerable pressure from within outwards. This is seen in old herniæ, that have either not been returned for a great length of time or are wholly irreducible. Such hernial sacs, as well as the coverings of old large hydroceles, offer a compact opaque investment, of from one to two lines in thickness, having a leather-like consistence, not susceptible of being folded, but remaining tense and elastic, like a piece of parchment. It may be compared to a cartilaginous sheath, or to a bit of thin gum-elastic. The interior surface is, for the most part, quite smooth, nowise different from a healthy serous membrane: it is sometimes, however, uneven, presenting traces of plastic exudation and false membrane, the result of some acute inflammatory attack. Upon its external or cellular surface lies the cremaster muscle, just as in the healthy state of the parts: generally speaking, indeed, the *tunica vaginalis communis*, together with the cremaster, can be readily detached from the condensed serous membrane, unchanged throughout their extent. In certain old and large herniæ, the author has found the *tunica vaginalis communis* much thickened, and hardly separable from the indurated serous tunic.

But this is an exception, occurring only in old herniæ, never in hydrocele. Since, therefore, the *tunica vaginalis communis* can with so much ease be disunited from the thickened *tunica vaginalis testis reflexa*, the author is led to conclude that the condensation is seated in the delicate cellular tissue external to the serous surface; an opinion confirmed by microscopic examination. The whole of this indurated investing material, often from two to three lines thick, is formed by irregular granular inflammatory exudation, deposited in a mass of cellular *fibrous* bundles, exhibiting the same disposition as the *fibres* in the normal serous membranes, namely, an interlacement of undulating lines. This contexture is seen, under the microscope, to be altogether different from that of cartilage. In these condensations of the *tunica vaginalis reflexa*, the surface of the testicle is smooth; its serous envelope transmits the reflexion of the bluish albuginea; neither in its form, volume, or consistence, is ought unusual. Yet in certain cases the testicle is somewhat lax, chiefly in aged subjects long affected with hydrocele. In two instances of hydrocele in young persons, the testicle was firm and elastic, although the accumulation of fluid was considerable, and, in one of the two, of more than four years' duration. Should this thickened state of the investing membrane interfere with reunion by the first intention after the operation for hydrocele, it will be expedient to excise a portion of the morbid tissue.

II. The thickened condition of the *tunica vaginalis inversa* alone is more rare than the preceding variety, and corresponds to what Roux has termed "scirrhus albuginææ." Betwixt the *tunica vaginalis testis inversa* and the *tunica albuginea* a layer of firm fibrous substance is discovered, variable in thickness, united to, but easily separable from, the serous tunic. The main point in reference to practice connected with this form of induration is the diagnosis between it and the proper degeneration of the testicle. Nor is this difficult; since it may be affirmed that, whenever the latter feels elastic and smooth, so that its integral parts can be made to glide, as it were, one upon the other, the glandular substance may be reckoned perfectly normal, and it can be felt without difficulty even through the thickened stratum: whereas, in fungus medullaris, even before the disease has gone far, the testis is always unduly hard; a fact pointed out by Sir A. Cooper.

III. Induration of the whole *tunica vaginalis testis*, or thickening thereof, both beneath the *tunica vaginalis testis* and over the albuginea, presents two varieties: the one is distinguished by the testicle remaining free in the cavity of the *tunica vaginalis*, while it is covered with those knotty protuberances formerly noticed under the second form, and the *tunica vaginalis reflexa* is thickened in precisely the same way as in the first. In this variety the thickened stratum is chiefly beneath the serous surface, more especially at the situation of transition of the *tunica vaginalis reflexa* into the *inversa*, or *ligamentum epididymidis*, as it has been named, it is further prolonged into the cellular texture appertaining to the other testicle. The second variety has been already noticed by Baillie and Delpech. Here the testicle does not protrude within the *tunica vaginalis*, being prevented by the quantity of adventitious deposit. The testicle, from the pressure of fluid, is broader and flatter than natural, and is found lying on the posterior inferior side of the *tunica vaginalis*,

when that is opened into. The condensation of that membrane is more marked here than in the foregoing variety: it does not, however, impede our recognizing by the finger the smooth elastic testicle.

From what has been stated, it is demonstrably evident that no operative interference is required for the relief of these indurative states of the tunica vaginalis. On the contrary, each of them ought to be treated as a simple hydrocele, and on no account whatever is extirpation of the testicle to be performed. Experience has proved that, after evacuation of the fluid, the morbid thickening of the tunica vaginalis gradually, and of its own accord, disappears. Any one who has carefully handled the healthy testis denuded (in the dead body,) will never be at a loss to recognize its normal consistence, and thereby remain possessed of a sure criterion for distinguishing a sound from a diseased one, however thickened the surrounding envelopes may be. All these points are well illustrated in the well-executed coloured plates accompanying the author's description.

ART. XIII.

1. *A Practical Treatise on the Diseases of the Skin, arranged with a View to their Constitutional Causes and Local Characters, &c.* By SAMUEL PLUMBE, Surgeon to the St. Giles' and St. George's Parochial Infirmary, &c. *Fourth Edition.*—London, 1837. 8vo. pp. 607; four Plates.
2. *A Practical Compendium of the Diseases of the Skin, including a particular Consideration of the more frequent and intractable Forms of these Affections; with Cases.* By JONATHAN GREEN, M.D. &c. *Second Edition.*—London, 1837. 8vo. pp. 371; two Plates.

It is a curious anomaly that an order of diseases, presenting, from their situation, peculiar facilities for observation, and for the development of a correct pathology, should be so involved in obscurity as diseases of the skin undoubtedly are; that their arrangement upon really scientific principles should be, even at this day, an object unattained; and the treatment of them, in most of its parts, little better than mere empiricism. Notwithstanding the labours of many distinguished and diligent enquirers, both in this country and abroad, the system of arrangement of Drs. Willan and Bateman, founded upon the divisions of Plenck, confessedly artificial as it is in principle, still remains, with some modifications and additions, the recognized guide in the acquirement of a knowledge of these affections; while the following passage, from the Introduction to Dr. Green's treatise, is but too just an account of the empirical and unsatisfactory mode of treatment hitherto almost universally followed.

"All that has been done," he observes, "in regard to the treatment of this class of complaints in this country, of late years, amounts to a few experimental trials of certain heroic remedies, (among which mercury, arsenic, and prussic acid, figure in the foremost rank,) and endeavours to force ourselves into the belief that cutaneous diseases were uniformly owing to some mysterious and indefinable affection of the digestive organs, nowise observable, in nine cases out of ten, in any derangement of their functions, but for which the blue or Plummer's pill, and purgative medicines, were the approved specifics. One or other of these pills was, therefore, almost uni-

formly commenced forthwith, and ample doses of purgative medicine were prescribed. This course being persevered in, and no good resulting, as was most frequently, though perhaps by no means invariably, the case, small doses of the *hydrargyri oxymurias*, combined with decoction of *sarsaparilla*, followed. This failing in like manner, Fowler's arsenical solution, and perhaps decoction of *dulcamara*, were next recommended; and these, either proving ineffectual against the disease, or causing some suspicious or unpleasant disorder of the system, were in their turn abandoned. The patience of the physician as well as of the patient being now worn out, they usually parted company at last, little satisfied with each other; the one lamenting the obstinacy of skin-complaints, the other inveighing against the inefficacy of medicine, if not against the ignorance of its practitioners." (P. 2.)

Dr. Green thinks that more rational views are entertained, and more rational practice has been introduced, by the French physicians, more especially in the employment of various modifications of the bath and the *douche*; but, at the same time that we are willing to admit the utility of baths of different descriptions, and their beneficial effects in regulating the functions of the skin and its appendages, we much fear that the indiscriminate mode in which these measures are had recourse to by French practitioners, at least in the Parisian hospitals, is only an additional exemplification of the correctness of the opinions expressed by Dr. Green with reference to preceding modes of treatment. In fact, as Mr. Plumbe justly remarks, the descriptions of the French writers (and we can bear testimony to their general accuracy,) shew that, whether from neglect, from a meager and impoverished diet, from constitutional peculiarity, or other cause, the instances of cutaneous disease met with in France are frequently such as in this country we can scarcely appreciate; and yet the use of baths in Paris, and other parts of the continent, is almost universal among the poor as well as the more elevated ranks, every facility being provided for their supply.

It is to other causes, then, as well as to mechanical obstruction of the functions of the skin, or to the accumulation of irritating secretions upon its surface, that we must look for a reason of the prevalence and severity of skin disease; and, however beneficial the use of baths, medicated or simple, or of the *douche*, and other topical applications, may be in certain forms of these affections, the reproach of pure empiricism will not be taken away until more just and more comprehensive views of pathology, and views more accordant with general principles, are impressed upon the medical practitioner.

Without pledging ourselves to the approval of the principles of arrangement adopted by Mr. Plumbe, in the present and preceding editions of his treatise, (which, as it appears to us, are much too limited in their application for general use,) we cannot but admit that the attempt is at least a step towards the attainment of a more correct pathology. More extended enquiry is however necessary, and a closer investigation than has yet taken place, instituted, with this express object, into the nature of many of the forms of cutaneous disease, is requisite, before these or any other principles can be received as a general guide to the arrangement and treatment of this class of affections. Mr. Plumbe establishes six sectional divisions, which he characterizes as follows:—
1. Diseases which obtain their distinguishing characteristics from, or originate in, local peculiarities of the skin; 2. Diseases chiefly marked by chronic inflammation of the vessels secreting the cuticle, producing mor-

bid growth of this structure, and generally dependent on debility of system; 3. Diseases exerting a probably salutary influence on the system, originally produced by, and usually symptomatic of, deranged digestive organs, and characterized by active inflammation; 4. Diseases of a mixed character, essentially dependent on active inflammation, with which the constitution is not necessarily connected; 5. Diseases dependent on debilitated and deranged states of system, and consequent diminished tone of the vessels of the cutis; 6. Fungoid diseases of the skin.—Under the first of these sections are arranged Acne, Scrofulous Inflammation and Ulceration of the Follicles, Sycosis, Lupus, and Porrigo;—the Second includes Lepra, Psoriasis and Pellagra, and Pityriasis;—the Third, Porrigo favosa, Strophulus, Lichen and Prurigo, Urticaria, Herpes, and Furunculus or Boils;—the Fourth, Impetigo, Scabies, and Eczema;—the Fifth, Purpura, Aphtha, Pompholyx and Pemphigus, Ecthyma and Rupia, and Erythema nodosum;—and to the Sixth are referred Ichthyosis, and Warts. Under the head of what are termed “Concluding Remarks,” we find an allusion to Erythema and an account of Roseola, chiefly extracted from M. Rayer’s work;—and there is an Appendix, containing a series of short dissertations upon Horny Productions of the Cutis, Corns, &c.; Parasitic Insects; Elephantiasis, Barbadoes Leg, Pedarthorace, Hypertrophy of the Scrotum, &c.; Aleppo Pustule, &c.; Leprosy of the Danes, of the Cossacks, of the inhabitants of India, and of the Jews; Beriberi; Sibbens; Frambæsia, &c.

An examination of the preceding list at once shews that the author has entirely failed in producing a natural arrangement, even of those affections of the skin which he has thrown together in his sectional divisions, without taking account of the omissions which he has attempted to remedy in his “Concluding Remarks” and Appendix. Not only, therefore, does this treatise labour under the very important objection of giving a most imperfect account of numerous affections which ought to find a place in a work professing to be a monograph of “the Diseases of the Skin;” but, as a nosological arrangement, and even as a guide to the inexperienced practitioner, it is comparatively useless. Considered as a system of arrangement, it can only be viewed in the light of a series of separate essays, in which the attempt has been made to develope certain natural features of resemblance. The attempt is laudable, and deserves every encouragement; it may in some few instances be thought to have partially succeeded; but we much fear that the principles upon which the sectional divisions are founded are not such as are of general application, and that, independent of an obscurity and undefined character which the sections present, capable perhaps of being removed or materially remedied by further investigation, they must fail both in affording a natural arrangement of these diseases, and in facilitating the acquirement of knowledge respecting them.

Dr. Green follows the arrangement of Willan and Bateman, with some modifications, perhaps improvements, which are in part derived from the elaborate treatise of M. Rayer. We recommend to Dr. Green, as well as to Mr. Plumbe, as a guide to their future researches, the valuable observations of MM. Breschet and Roussel de Vauzème on the structure of the skin, of which we have given a pretty full account in a preceding Number. Mr. Plumbe, indeed, refers to these investigations in his pre-

liminary remarks, although the abstract which he makes of them is so full and clear as could be wished, considering their important bearing upon the morbid conditions of this texture and its appendages. Those who have not the opportunity of referring to the original memoirs may consult with advantage the notice of them and the accompanying plate in our second volume.

The introductory remarks in the work of Mr. Plumbe are, in general, judicious; but we must protest against the dangerous tendency of his observations as are contained in the following extract, especially as a young and inexperienced practitioner is so likely to be misled by them.

"The prejudice is of old standing," says the author, "that cutaneous diseases ought not to be suddenly removed, and many and long are the tales recorded of mischief following their sudden disappearance. To combat that prejudice successfully is not to be expected by any author, but something may yet be alleged in shape of argument and fact, calculated to diminish or modify it. There can be denial of the powerful influence of irritation, inflammation, vesication, or ulcers of the cutaneous surface, in warding off the mischief and counteracting the progress of internal disease. A practice founded on this principle is universally adopted by medical men, and very frequently with the greatest success, where manifest symptoms of internal disease exist. But the question naturally occurs, how, if there be no signs of such internal disease, can the practitioner be afraid of curing his patient, speedily as possible, of the external affection? The truth is, that few or no diseases of the surface require any but (to use a phrase not common in medicine,) *off-hand* treatment, unless there be reason to apprehend that internal organic disease really exists or is threatened. It is seldom, indeed, under such circumstances, that diseases of the skin are of more than secondary importance; and hence the general position I have endeavoured to lay down, of considering them in all their parts and characteristic conjunction with the state of constitution of the patient. When, therefore, there is reason to suspect the integrity of any vital organ, I apprehend nothing in the form of mischief may be expected if the skin disease be got rid of at once, whether by external applications or internal medicines. The doctrine of the humoral pathology is supported, and still continues to support, a contrary notion, but I believe it to be entirely fallacious; and I have never found cause to regret having acted on that notion." (P. 34.)

We much fear that, should the young practitioner, relying on the absence of external indications of internal disease, in cases of long continued cutaneous affection, attempt to cure such affection in the *off-hand* manner recommended by Mr. Plumbe, he will have very serious cause to regret having acted on that opinion. It is an idle assertion to make, that "many and long are the tales recorded of vital mischief following the sudden disappearance of cutaneous disease, without at the same time informing the reader by whom these many and long tales have been recorded. When it is understood that facts, related by such names as Alibert, Philippe Boyer, Bouchard, Campet, Chaussier, Esquirol, Hoffmann, Klein, Lorry, Petit, Portal, Raymond, Schenk, &c., to nothing of many eminent writers in our own country, are to be for bearing testimony to the reality of this vital mischief, it will, we think, require more in the shape of fact and of argument to abate the so-called prejudice of not too hastily attempting to get rid of cutaneous disease than Mr. Plumbe has yet brought forward.

But Mr. Plumbe establishes one important section of these diseases upon the principle, and, as it appears to us, the correct principle, although perhaps scarcely available for his purpose, that the disease

referred to it are usually symptomatic of a deranged state of the digestive organs; and it is only necessary to collate the leading characters given of each of the six sectional divisions into which he has distributed skin diseases, to observe that, in the diseases included in four of these divisions, Mr. Plumbé himself considers the system generally to be materially implicated. Surely, then, to say that "few or no diseases of the surface require any but *off-hand* treatment," is much too off-hand an assertion; and the qualification which immediately follows, by way of exception, should be regarded rather as the general rule. We should rather say that, as, in the greater number of cases, there is reason to apprehend that internal organic or functional disease really exists, or is threatened, disease of the surface by no means admits of *off-hand* treatment; and we should say further, that, even in cases of scabies,—a disease which is now known, from the researches of M. Raspail, to take its rise from the presence of a parasitic insect,—when the affection has been of long standing, it behoves the physician to investigate carefully the secondary effects which may have resulted upon the constitution of the patient, and to be prepared to appreciate and to remedy any injurious consequences which have arisen in the course of the disease, or which may arise in the progress of cure.

These views are in accordance with those of the most judicious practitioners, and with the best authorities upon the subject. "The more we study," says M. Rayer, "the development and tendency of the greater number of the diseases of the skin which occur independently of any outward appreciable cause, the more we become convinced of their connexion with the state of the constitution, and of the necessity there is for considering them under this point of view before we think of undertaking their cure, or even of interfering with them so as to modify their progress." M. Alibert has expressed the same opinions; while Lorry, Esquirol, and many other eminent writers, abound with cases illustrative of the mischief which too often arises from a disregard of them.

Dr. Green's treatise seems to have been written chiefly with the view of bringing forward his experience in the employment of the various modifications of the bath. The utility of these, as adjuncts, we are not disposed to question, although the author appears much to overrate their value in ascribing to them effects which are probably due, in part at least, to the employment of constitutional measures previously or conjointly adopted. His remarks on the general treatment are judicious, although not possessed of much novelty. Mercurials and antimonials he considers as being greatly overrated; the latter possessing very little effect in the cure of skin disease, and the former being frequently positively injurious, which, under the indiscriminate employment too often made of this mineral, is but too likely to be the case. In those forms of chronic cutaneous disease in which the eruption is attended with an inflamed state of the cutis, we can bear decisive testimony to the efficacy of depletory measures, general or local; general, by means of venesection, and reduced or regulated diet, when the constitution will admit of it; and local, by means of leeches and emollient fomentations applied close to or upon the affected parts. Some of the varieties of porrigo we have seen especially benefited by repeated applications of leeches to the scalp, after the hair had been cut close, and the crusts carefully removed.

A great variety of remedies have been employed in the treatment of different forms of skin disease, many upon no better principle apparently than mere experimental caprice; and of these not a few have been highly extolled as capable of curing the most obstinate of these affections. If, however, we take the trouble to collate the several observations brought forward by various authors in favour of certain remedies with the experience of others, we shall find that those only have retained a place in the practice of the unbiassed and intelligent physician, which may be shewn to act in accordance with some general or recognized principles: for instance, in the syphilides, or the various forms of papular, squamous, tubercular, or other eruption consequent upon a syphilitic infection, mercurials, sarsaparilla, and nitric acid; in erysipelas, tartarized antimony; iodine in the scrofulous forms, or in those occurring in scrofulous constitutions; the different preparations of iron in such as are accompanied with, or have been preceded by, irregularities in the catamenial functions; tonics internally, and stimulant topical applications, where there is evidence of constitutional or local debility; general and topical bleeding, with aperients and regulated diet, in the more inflammatory states; and lastly, alteratives, alkalines, or acids, in those forms which are connected with, or dependent upon, a disordered state of the digestive functions.

Both the treatises before us afford abundant evidence in confirmation of these remarks. The frequent benefit derived from copious ablutions, and from the baths and sulphur fumigations so strongly recommended by Dr. Green, may be resolved into the same principle; for the cases in which these remedies are found most efficacious are precisely those in which the functions of the skin generally are deranged.

In the observations which we have been induced to make upon the works of Dr. Green and Mr. Plumbe, we have not felt ourselves called upon to enter into an extended analysis of their contents, since both treatises have been already some time before the profession, while the consideration of the several subjects in detail would have encroached too much upon our limits. For these we must refer to the works themselves, in which our readers will find them in general judiciously treated. Dr. Green's Compendium is decidedly the most complete, and is further valuable as containing the results of his own experience in the treatment of the cases, with the advantage of well-regulated baths and fumigations. In many varieties of skin disease, more especially in the more chronic forms, the evidence of the benefit derived from such applications is decisive: at the same time we must observe, that the employment of the sulphur-fumes in the more acute states, even from Dr. Green's own statements, seems very questionable; and, when we find this remedy extolled in erysipelas and acute erythema, we are induced to hesitate in receiving the opinions of the author with that confidence which we should otherwise have been disposed to give. In the cases detailed of the latter disease, we much question whether the sulphur-fumes were not decidedly injurious; and there can be little doubt that the cure of the affection is to be attributed rather to the judicious employment of venesection and other appropriate remedies. The same observations apply equally to the acute stages of prurigo, lepra, &c., in which no benefit seems to have been derived from the fumigations until the inflamed state of the skin

was subdued, and the eruption materially abated, by the use of depletory measures. The *modus operandi* of the sulphur-fumes seems to consist in the inducing of a process of desquamation, by which the diseased and thickened cuticle is extensively removed, permitting the formation of a new cuticle upon the surface of the skin, restored by this and other remedies to a more healthy state.

Mr. Plumbe's Treatise, though labouring under the disadvantages which we have before pointed out, has yet the merit of presenting some of the subjects which it embraces in connexion with others to which they are nearly allied, and which had been kept too far apart in the writings of preceding authors. It has also the merit of simplifying considerably, and reducing to their just rank, the minor divisions into genera and species of Willan, Bateman, and Alibert, and of presenting some important views in respect of treatment which, with the precautions previously pointed out, and which indeed the author himself occasionally enforces, are deserving the attention of the practitioner.

We must, however, before concluding, so far depart from our intention of not touching upon the consideration of particular subjects, as to recommend for careful perusal the chapter in Mr. Plumbe's work on Scrofulous Inflammation and Ulceration of the Follicles. The observations there given present, what we believe to be, a faithful picture of the destructive ravages which follicular cutaneous disease sometimes occasions in scrofulous constitutions. It is clear that no local measures could avail under the condition here so forcibly described; the only treatment which, as it seems to us, can be of any real benefit, is a removal from low, damp, or crowded and ill-ventilated situations to a mountainous or maritime district, regulated and nutritious diet, and perhaps the exhibition of iodine internally.

ART. XIV.

1. *Practical Observations on various Subjects relating to Midwifery*. By JAMES HAMILTON, M.D. F.R.S.E., Professor of Midwifery, &c. Parts I. and II.—Edinburgh, 1836.

2. *A Letter addressed to Dr. FORBES and Dr. CONOLLY, Editors of the British and Foreign Medical Review*. By Dr. HAMILTON, Professor of Midwifery, &c.—Edinburgh, 1837.—8vo. pp. 20.

OUR readers will recollect that we had occasion to notice the first Part of Dr. Hamilton's work in a former Number. The second Part is now before us, as well as the long Letter, in the form of a pamphlet, which Dr. Hamilton has done the Editors of this Journal the honour of addressing to them. It was our intention to have given our readers an account of Dr. H.'s new volume in the present Number; but, as we have been unable to find room for the article which we had prepared on it, we must content ourselves with briefly adverting in this place to the *Reclamation* which the author has thought it necessary to put forth in reference to certain of our comments on his former volume. We are induced to do so solely because the matters in discussion are of an important practical nature; as we altogether disclaim the purpose of entering, at any time, or

with any person, upon questions of mere controversy, originating in difference of opinion between ourselves and the authors of the works reviewed in this Journal.

We refer to our pages for the proof that we belong not to the family of Dr. Johnson's critic in the Rambler, who "knits his brow, and raises his voice, and rejoices whenever he perceives any tokens of pain excited by the pressure of his assertions or the point of his sarcasms." We have but the one object in view for which Dr. Hamilton gives us credit,—by candid and liberal criticism to promote the improvement of science, and not to depreciate the character of those who exercise it. It is true our criticisms are anonymous, but they are couched in precisely the same terms, and influenced by precisely the same spirit, as if our names were given to the world. We must, however, claim the privilege of freedom of discussion, and we cannot condescend to the servility of flattery. We are sincerely sorry to find that any comments of ours have given uneasiness to Dr. Hamilton; for, in common with, we doubt not, the whole of his brethren, we have a very high respect for the devotion with which he has successfully dedicated a long life to the improvement of his profession; and we confess that, in commenting upon his works, we are afraid of not giving him credit for all the originality that fairly belongs to him. His peculiar views and practical doctrines have been so widely disseminated by the numerous pupils he has for so many years instructed, that, in all probability, opinions and improvements, which he first suggested, are now often met with in the writings of others, where, if they are not specially claimed as the property of the author, they are not, and perhaps could not, be traced to the source from whence they were at first derived.

The practical subjects upon which we have differed from Dr. Hamilton in our notice of his work in No. V. of our Journal, and which he brings under our review in the hope that, from our candour, we shall see reason to change our opinions, are the following:

Firstly, in cases of prolapsus uteri, Dr. Hamilton states that pessaries "can only act as palliatives, whatever may be the degree of the disease." We answer, that pessaries, properly used, may, and sometimes do, *cure* the prolapsus. We know this from our own experience. We cannot admit that "they *necessarily* keep up a constant irritation in the passage." We have frequently applied them, and the patients have worn them for a considerable time with the greatest comfort and relief, and without the slightest uneasy sensation being produced by them. It is true that, "unless they are properly adapted, they make injurious pressure on the contents of the pelvis." But this is merely an objection to the abuse of the instrument. Dr. H.'s fourth objection is, that, if the pessary be "not frequently taken out and cleaned, it becomes encrusted with a calcareous matter, which proves highly irritating." Granted; but every practitioner guards against this mischief by giving proper instructions to his patient. In severe degrees of prolapsus uteri, whatever may be the treatment adopted, the patient may long, and perhaps for life, require medical care; but we know, from cases which we have treated, that there are very many exceptions to the alleged fact, that pessaries "subject the patient to the charge of the medical attendant for life." We have not and do not deny that "cases from time to time occur where no ordinary pessary can be retained." We must doubt the propriety of "banishing" any mode

of practice, because in *one* case it had been grossly abused by the carelessness of the patient. In the case related by Dr. H., at page 26, "minute directions were given to have the pessary withdrawn once a week, and carefully cleaned." The patient, however, never withdrew the instrument: it became impacted, and made its way into the rectum. "From the date of that case, the author has never sanctioned the use of pessaries!" We have not, in our review, objected to the treatment advised by Dr. Hamilton; but we see no reason to retract our opinion that both he and Osiander have been too hasty and too exclusive in their condemnation of an instrument, which we are often compelled to use, and which, when skilfully employed, is certainly not liable to produce the mischievous effects which they attribute to it. We repeat our doubts as to the propriety or safety of recommending a patient with prolapsus of the uterus to have recourse to "walking exercise," however "cautiously begun, whatever be the feelings of the patient," (p. 30;) but, upon the authority of Dr. Hamilton, we have expressed our determination to give this novel practice "a fair trial;" and so we shall.

Secondly, our "observations on polypous excrescences do surprise" Dr. Hamilton. "How there could be any difference of opinion on the diagnostic marks is to me unintelligible," says Dr. H. We refer to Dr. Gooch's* cases, and to Mr. Arnott's Lecture.† We need not accumulate evidence upon a practical point that is so perfectly intelligible. All that we have said in our review, however, is, that "prolapsus can only be distinguished by actual examination; and, even with this assistance, the young practitioner may be mistaken in his diagnosis." So far from retracting this opinion, we add that the difficulty of diagnosis may extend to the old and experienced. One case in point we have quoted from Velpeau. Gooch says that, in the treatment of polypus, "the chief difficulty is in the diagnosis;" and that, "when a tumour is detected, he has known the most experienced practitioners hesitate about its nature."‡ We cannot modify any part of the opinion we have stated in our review concerning the "*general*" superiority of excision to the use of the ligature in cases of polypus; and we must be allowed to repeat, that Dr. Hamilton is *quite in error* as to "British practitioners" being "universally agreed that the safe mode of operating is by ligature," or that "French surgeons have lately preferred the double operation of tying the polypus, and then cutting it off." We adhere strictly to the assertions we have made in our review, that excision is now *generally* preferred here and in France. Dr. Hamilton states it as his "opinion" that excision, even if practicable, is a most hazardous operation, unless where the excrescence does not exceed the size of a filbert." He must allow us to reply, that an "opinion," by whomsoever expressed, cannot be opposed to the result of experience. Sir Benjamin Brodie permits us to state that he has several times removed large polypi by excision, and that no danger ever arose from the practice. We saw Mr. Arnott remove a polypus, which completely blocked up the vagina, and which was nearly as large as a double fist. "Not a couple of ounces of blood followed the operation,"§ and in less than a month the patient was well.

* Account of some of the most important Diseases peculiar to Women, p. 261, &c.

† Med. Gazette, vol. xviii. p. 410.

‡ Loc. cit. 261; and Arnott's Case, loc. cit.

§ Loc. cit. p. 413.

In several cases we have ourselves adopted the same practice, and with the same success. Dupuytren operated by excision in two hundred cases, and *only twice* met with hemorrhage to any extent; and in both cases it was quickly stopped by plugging the vagina. Again, we refer to the best authorities upon the subject to prove that Dr. Hamilton is mistaken in asserting that "the *only* danger attending the ligature arises from the risk of including a portion of the uterus." Irritation, fever, and death have resulted from the practice when the ligature was applied to the stalk of the polypus; and the fatal cases, as related by Dr. Hamilton, at p. 59 *et seq.* of his work, would, in our opinion, lead most practitioners to doubt the safety of the practice, even where no portion of the uterus was involved in the ligature. We confess we know nothing of the advantages of silver wire over other kinds of ligature. Lecat, we believe, first recommended it; it is objected to by Monfalcon,* Burns,† &c.

Lastly, as to the evidences or signs of human pregnancy, a subject, in many points of view, of the very utmost importance, and concerning which it is essentially necessary we should not assume a degree of certainty we do not possess. Dr. Hamilton does "not venture to express what he thinks" on our remarks upon his observations on the evidences of pregnancy. And "by what mode of reasoning any individual acquainted with the economy of the gravid uterus could suppose it possible for menstruation to continue during pregnancy," appears to Dr. H., "considering the present state of our knowledge of anatomy and physiology, to be very inexplicable." If Dr. Hamilton will do us the favour to refer to Dewees,‡ Desormeaux,§ Mayo,|| Velpeau,¶ or, still better, to Dr. Montgomery,** whose *candid* and elaborate consideration of the signs of pregnancy deserves the highest praise, he will find the mode of reasoning that has been adopted, and the facts that have been recorded in proof of the opinion which we, in common with the great majority of practitioners and writers in midwifery maintain, that the menses *may* flow during pregnancy: or, if we must guard against a quibble, that such a periodical discharge may appear that cannot be distinguished from the menses.

The confidence, too, with which Dr. Hamilton regards the areola as an *invariable* sign of pregnancy, is opposed to the opinions of most practical observers and writers; and we must be allowed to add, that the cautious statements of Denman, Gooch, &c. are much too cavalierly treated and dismissed. How can Dr. H. take upon himself, with propriety, to declare that the assertion of Denman, of the areola being formed in many of the complaints which resemble pregnancy, is quite inconsistent with the observation of *every* modern practitioner? We have for many years paid great attention to this subject, and we believe we have seen, to use no stronger term, a completely formed areola in cases of dysmenorrhœa. Dr. Hugh Ley was of the same opinion. Nobody, we believe, doubts the *great* value of these signs of pregnancy, nor the *strong* presumptive evidence they afford; but we object to their being adduced as *invariable* proofs of pregnancy in the early months, as strongly as we do to the belief of Dr. Hamilton, that, in the latter months, the movements of the

* Dict. des Sciences Médicales, t. xlix. p. 248.

† Midwifery, eighth Edition, p. 118.

‡ Midwifery, p. 93 *et seq.*

§ Dict. de Médecine, t. xiv. p. 185.

|| Physiology, third Edition, p. 371.

¶ Accouchemens, t. i. p. 182.

** Cyclopædia of Pract. Med. vol. iii. p. 471.

infant can *always* be distinguished by an attentive practitioner. Dr. H. admits that "cases are recorded, upon apparently good authority too, where it was supposed that, although pregnancy proceeded safely to the full period, the movements of the infant, though alive, had never been perceived by the parent, and could not be detected by the practitioner." Such is our own, and such is the general conviction of the profession; and, again, we must object to the dogmatic manner in which Dr. Hamilton gets rid of the difficulty, by saying "that he holds all those alleged cases to be the offspring of prejudice and credulity." Upon this, and upon all the other signs of pregnancy which Dr. Hamilton would almost alone have us look upon as "invariable," we might have adduced, in opposition to him, a host of authorities of the highest reputation, who rely upon undoubted facts for the support of their opinions.

We have now noticed all the important points of Dr. Hamilton's letter, and we leave our readers to judge whether we have or have not substantiated the remarks we made in our review.

ART. XV.

First Principles of Surgery; being an Outline of Inflammation and its Effects. By GEORGE T. MORGAN, A.M., Lecturer on Surgery in Aberdeen.—London and Edinburgh, 1837. 8vo. pp. 210.

ALL who feel interested in our profession must view with satisfaction the progress which the operative department of surgery has made during the last half century; but no educated surgeon will fail to recognize a far more worthy subject of congratulation and pride in the improved state of our knowledge in the treatment of disease, which renders operations less essential, and consequently less frequent. The labours of our illustrious countrymen, Cheselden, Pott, Hunter, Cline, and their contemporaries and immediate successors, have lent their powerful aid in dispelling the ignorance and prejudice by which the advancement of scientific surgery was so long retarded; and they have left the impressive lesson which, in this enlightened age, we ought not to forget,—that accomplished manual dexterity, though doubtless an indispensable qualification in the operating surgeon, should ever be held subservient to the far more desirable attainments which will enable him to have less frequent recourse to his scalpel.

Of all agents, whether in the production of disease or its removal, whether as the opponent or ally of the surgeon, no one has a more universally extended influence, or is more subtle and deceptive in its *modus operandi*, than inflammation. We need not wonder, then, that a more correct insight into the laws which regulate vascular action and the condition of the vessels under inflammation, should have had such a beneficial influence in establishing on a firm basis the principles of surgical practice. It is to the monographs of Hunter, Thomson, Gendrin, &c., that we are indebted for the most valuable contributions in this department of pathology. Let us hope that their example may induce others to labour in the same field of science, which still offers so ample a harvest to those who cultivate it carefully.

Mr. Morgan's work does not rank amongst the list of original contri-

butions, but is essentially a student's book; his aim being "to render a simple statement of known or acknowledged facts;" and thus "to furnish the surgical student with an outline of inflammation and its effects brought down to the present period." How successfully he has accomplished these objects will be best proved by a perusal of his work: in the mean time, we shall undertake the agreeable task of presenting our readers with a brief analysis of its contents.

A part of the Introduction having been devoted to a sketch of the course to be pursued in the subsequent investigation, the author proceeds to devote a section to the consideration of the arterial system, in which the opinions and experiments of Haller, Bichat, Hunter, Parry, Thomson and other physiologists, are severally quoted and discussed. This is done with perspicuity and as much conciseness as the extent of the subject and the many conflicting opinions to be noticed, will admit of; and the facts adduced, with their accompanying inferences, form an useful and interesting compendium of information which is absolutely essential to the right understanding of the subsequent sections.

In entering on the discussion of the *Theory of Inflammation*, the author seems fully impressed with the difficulties of the subject; and his introductory remarks are so just and apposite, that we are tempted to lay them before our readers: our quotation may further serve as a specimen of the simple and clear style, and, we may add, the philosophical tone of Mr. Morgan's work.

"To establish a just theory of inflammation is a point of the highest importance in medical science, as tending directly to improve our knowledge of morbid action, and enabling us to lay down precise rules of treatment, free from all appearance of empiricism. This is a subject still involved in dispute, and one on which even experimental research has failed to produce conviction. We enter upon it, therefore, more with the view of recording the phenomena we have observed, and making up our history of the disease, than with any hope of assisting in the adjustment of so intricate a problem. The difficulties we have to contend with, in watching the circulation in state of health, apply themselves with double force when investigating the nature of inflammatory action; and, were our acquaintance with the former more enlarged, our knowledge of the latter would be comparatively easy. The more immediate phenomena of inflammation are confined to the minute blood-vessels, and to the change going forward in them our attention must therefore be first directed. There is no way only of arriving at the truth, and that is by inducing the disease in the transparent parts of an animal, observing with the microscope the changes which ensue, and marking carefully the order of their occurrence. Nothing satisfactory can be elicited by considering the symptoms during life, or examining the alteration of structure long after death. On neither of these two heads can we reason correctly. From the first any conclusions as to the state of the circulation must be vague and uncertain. From the second, still less can be gathered respecting the process of inflammation, because its effects alone are visible; the morbid action which led to them has ceased with life. (P. 33.)

Mr. Morgan enters upon his subject by a consideration of the two theories of increased and diminished action of the vessels; and his observations on the labours of Philip, Thomson, Hastings, and Kaltenbrunner, are judicious. After attempting "to amalgamate and reduce to a proper order the views entertained by the contending parties, the author dismisses his summing-up of the different hypotheses with a remark in which we cannot but concur, "that it is much to be regretted that some portion of the valuable time wasted on this subject has not been given to matters of greater importance."

In Section 111., the *local symptoms of Inflammation* are treated of, and the theory of the generation of heat is noticed. The same perspicuity of style is here evident, but nothing novel is introduced which requires remark. The consideration of the *constitutional effects of Inflammation* occupies the fourth section, and the subject is ushered in by a brief outline of the history of fever, comprising the theories which gave rise to the doctrines of the humoral and nervous pathology. The now-revived opinions of Hippocrates and Galen are first noticed, and the tenets of Boerhaave, Stahl, Cullen, Brown, and others, more fully discussed. Our author, however, does not rank himself with either the solidists or fluidists; for, whilst he adopts (justly we think,) the views of Andral with respect to *inflammatory fever*, which, as that pathologist remarks, "seems often to arise from no other source than the blood being too rich in fibrin," we find him subsequently expressing a hope that "the humoral pathology may emerge from the obscurity and ridicule thrown over it by its bigoted opponents, but, at the same time, that its due share in the constitution of disease may only be assigned to it."

The views of the later French pathologists regarding the origin of fever in *gastro-enteritis*, are next touched upon; and here Mr. Morgan is more explicit in the announcement of his own opinion. "Whether," he observes, "the primary source of common fever consists in a morbid poison applied to the blood in the lungs, and by which the nervous and other systems are subsequently affected, or whether the changes in the latter take precedence of the changes in the circulating mass, we do not pretend to determine; but we hold that the records of established cases coincide with daily experience in proving the worst varieties to occur without the coexistence or supervention of local disease." (P. 106.) Now, whether such local diseases stand in the relation of cause or effect to the febrile action, we do not feel ourselves more satisfied than Mr. Morgan, although we acknowledge our leaning to the opinion, that the organic lesions which are found to accompany fever are often, if not always, the result of primary and local *functional* derangement; still we fully coincide with Broussais, Louis, and others, that the cases of fatal fever are indeed rare, in which organic lesion of some viscus may not be discovered, or where, if not discovered, it may not be inferred that our imperfect means of investigation is the true cause of such change having eluded our observation.

The symptoms of ordinary fever, and the morbid changes in the circulating mass, are next ably treated of, as is also the important subject of symptomatic or irritative fever. This section concludes with a vivid sketch of the two worst kinds of constitution in which a serious accident can occur.

"There are two principal morbid varieties of constitution in which local injuries produce peculiar and extraordinary effects. The one is that of general plethora attributable to over-repletion of the vascular system; the other arises from an impoverished state of the blood, coupled, in the worst species of cases, with a disturbed condition of the nervous system. We shall only select the extremes of these for examples, as it would be impossible to detail, within a brief space, the various combinations to be met with. Fortunately, such cases are easily recognized at the bedside, and their treatment must be regulated according to existing symptoms." (P. 144.)

The truth of the last sentence of the above paragraph we are ready to admit, but the propriety of the mode of treatment prescribed we must

question. "The full, bloated habit," says Mr. Morgan, "is principally confined to those who live high and take little exercise, or those who eat freely and use large quantities of malt liquor," (p. 145): and again in the following page; "there is at first great excitement of the whole vascular system, followed by a corresponding degree of depression; there is a disposition to action, without sufficient strength to maintain it." Now surely this admission is scarcely consistent with the treatment that is there advocated. "Nothing at the commencement will suffice but free, general, and local depletion, with purgatives; and we have, by these means, known consciousness restored, after an unfavorable prognosis had been passed." (P. 147.) This is certainly at variance with the result of the experience of our best surgeons in the practice of the London hospitals. The cases are rare in which they can venture upon more than an active purge or topical depletion in a severe injury, such as compound fracture, in subjects of the class now referred to; and we have known the most disastrous consequences follow the use of the lancet, even in the most full, bloated habits. The student, therefore, should be warned that, although he may readily recognize such a condition of the system by the bedside, he must take into consideration the shock the frame has already sustained, and the demand there will be on the powers of the constitution to repair the mischief: and his experience will probably soon teach him that he will speedily be called on to afford support, in lieu of detracting from the animal powers. It is, however, proper to add, that the subjects of severe injuries, who breathe a pure air and follow a healthy occupation, as in the country and the smaller provincial towns, will bear and even require depletion; when the inhabitant of our densely populated cities and manufacturing districts would, under similar circumstances, sink beneath the remedy. The judicious practitioner will soon learn to modify his treatment with the varying circumstances of his patients.

The fifth section is on the *varieties in the process of inflammation*; the sixth on the *terminations* of inflammation; and in the seventh and last, the *progress of inflammation in different structures* is considered. This interesting and important subject is handled in a style quite equal, if not superior, to that in which the preceding divisions of the work are executed. Here, as elsewhere, Mr. Morgan availed himself largely of the labours of others, and has thus exhibited a clear and highly practical view of the character, progress, and results of inflammation in the various component textures of the body.

In thus presenting our readers with an outline of the contents of the volume before us, it will be perceived, that we have found but little to criticise and much to commend. If Mr. Morgan is occasionally rather severe in his strictures on the labours of others, his severity has its origin not in captiousness but in the more practical tendency of his own views, a tendency which cannot fail greatly to enhance the value of his book. We have already remarked upon the perspicuity of the style: there is also frequently a terseness and vigour of description which is very impressive, and effectually shuts the door against ennui. Altogether, the perusal of Mr. Morgan's little work has afforded us much satisfaction, and we can conscientiously recommend it to the surgical student, as an interesting and trustworthy guide to the most important of all the subjects to which his attention can be directed both in the commencement and in the progress of his labours.

PART SECOND.

Bibliographical Notices.

ART. I.—*The Hunterian Oration, delivered in the Theatre of the Royal College of Surgeons in London, on the 14th of February, 1837.* By SIR BENJAMIN C. BRODIE, Bart. F.R.S. &c.—London, 1837. 8vo. pp. 38.

COMPOSITIONS of this kind do not demand elaborate critical notice, but the one before us is by no means of a commonplace character. The Oration, as many of our readers doubtless know, was founded by Sir Everard Home and Dr. Baillie, in commemoration of John Hunter and of others who, like him, but in a less degree, contributed to advance the sciences connected with medicine. Unlike the annual formality at the College of Physicians, the coldness and dulness of which none can forget who have ever formed part of the audience of some thirty or forty melancholy individuals, assembled to gaze on the robed dignitaries of that establishment, and to hear names, before unknown to fame, enumerated in the list of the great deceased, the Oration at the College of Surgeons is in a language familiar to living men. The Oration at the College of Physicians is sometimes, we fear, to be ranked with those compositions, “pseudo-latinos, sed ferreo adeo et intorto sermone contextos, et tot barbaris sesquipedalibusque vocabulis horridos;” of which our sometime honoured teacher used to say, that neither ancients nor moderns, nor Scaliger himself, although he rose from the dead, could easily interpret them.

Of John Hunter's Life our pages contain so full an account, that we shall not refer to that part of the Oration which relates to it; but the rise of two such remarkable men as William Cullen and William Hunter from the obscurity of a small country town to the most distinguished stations in the profession, in the capitals of Scotland and England, is strikingly introduced; and the notice of William Hunter, especially, is as interesting as we believe it to be faithful.

“A century has just elapsed since a young man, established as a medical practitioner in the then small town of Hamilton, in Scotland, received into his house another young man, not many years junior to himself, as a pupil, that he might instruct him, as far as his limited means gave him the opportunity of doing so, in the elements of medicine and surgery. After the lapse of three years, an intimate friendship having become established between the master and the pupil, it was agreed that they should enter into a partnership, to practise in Hamilton as surgeons and apothecaries. For this purpose, however, it was thought necessary that the younger of these individuals should visit the medical schools, which had then been only lately established, in Edinburgh and London, so as to complete his education. Accordingly we find him, at the end of another year, studying anatomy in London under Dr. Douglas, a celebrated anatomist of that day, and filling at the same time the office of preceptor to Dr. Douglas's children. Here new schemes of life were offered

to his ambition; and the result was, that he never returned to Hamilton. Not long afterwards his friend followed his example, seeking a wider field for the exercise of his talents, first in Glasgow, afterwards in Edinburgh. Of these young men the one, and the elder, was William Cullen, and the other was William Hunter: and such was the humble origin of two of the most remarkable men who ever engaged in the pursuit of the medical profession.

"Of Cullen, you well know that his talents raised him ultimately to the high situation of professor of medicine in the university of Edinburgh; and that, whatever may be the estimate which we now form of his pathological doctrines, they had a most extended influence, not only at the time of their being promulgated, but long afterwards; and that his system of nosology has, even within these few years, been a principal textbook of the medical schools.

"William Hunter, transplanted to London, entered enthusiastically into his new pursuits; and we find him, some time afterwards, writing to his friend Cullen in the following terms: 'Well! how does the animal economy appear to you, now that you have examined it, as one may say, with precision? I have good reason to put the question to you, because, in my little attempts that way, since I began to think for myself, Nature, where I am best disposed to mark her, beams so strong upon me that I am lost in wonder, and count it sacrilege to measure her meanest features by my largest conceptions.' Not many years elapsed before he became well known as a lecturer on anatomy. This was the foundation of his fortune; but he was ultimately recognized as one of the greatest pathologists at that time in Europe.

"I am not aware that there is any one present of such an age as to remember what William Hunter was as an anatomical teacher. But tradition supplies the place of memory; and I have, in the early part of my life, so frequently heard him spoken of in that capacity by older persons, that it seems to me almost as if I had been myself his pupil. He is reported to have been at once simple and profound; minute in his anatomical demonstrations, yet the very reverse of dry and tedious. Subjects, which were uninteresting in themselves, were rendered interesting by the liveliness of his descriptions; and the more important points were illustrated by the relation of cases, and the introduction of appropriate anecdotes, which, while they relieved the painful effort of attention, served to impress his lessons on the mind in such a manner that they could never be effaced. His paper on the Structure of the Cartilages of Joints, published in the Philosophical Transactions for the year 1743, (at which time he was only twenty-five years of age, and in which he anticipated all that Bichat wrote sixty years afterwards respecting the structure and arrangements of the synovial membranes,) and his illustrations of the Gravid Uterus, sufficiently shew how correct he was in matters of detail, and at the same time how comprehensive were his general views. But we have evidence that his Lectures possessed merits of a higher order than these. His paper on the Uncertainty of the Signs of Murder in the Case of Bastard Children, published in one of the volumes of the Medical Observations and Inquiries, seems to have been little else than a transcript of a part of one of his lectures; and it is impossible to peruse it without being struck, not only with the intellectual penetration, the great good sense, and the power of argument, which is there displayed; but also with the indications which it affords of a humane, charitable, and even tender disposition. If we may venture, from this specimen, to form our judgment as to his other lectures, their tendency must have been to improve his pupils with respect to their moral qualities, fully as much as with respect to their professional attainments.

"It is natural for a man to delight in that occupation in which he is conscious that he excels; and accordingly we find that the delivery of his lectures on anatomy was William Hunter's favorite pursuit. At first he found it convenient to teach anatomy, as affording him the means of subsistence; but he continued to do so when the more lucrative pursuits of private practice had given him wealth beyond the most sanguine expectations of his early life. From this time, as I have been informed on good authority, he was accustomed to say, 'I wish to make no profit of my lectures; I am quite satisfied if they pay their own expenses;' which, of course, included those of the anatomical department of his museum. The performance of his duties as a lec-

turer was terminated only by his death; and I have been informed that, when his last moments had arrived, his mind still reverted to that which he regarded as the most worthy occupation of his life, and that he said 'I wish now that I had but strength to bear being carried into my theatre, that I might tell my pupils how much comfort and happiness I feel.' " (P. 8.)

Sir Benjamin adds, that he could almost wish that the Commentaries of this great physician had never been published, displaying, as they do, such marks of weakness, and of unnecessary anxiety on the subject of his well-founded reputation as a scientific discoverer.

In our notice of Mr. Ottley's Life of John Hunter, we alluded to the extraordinary fact that about 70,000*l.* were expended by that great physiologist on his museum. William was equally munificent in the same way. His museum and collection, now at Glasgow, is said to have cost 100,000*l.*; and all this was saved, in the instance of both brothers, from their professional emoluments. This noble collection, which it is the just pride of the ancient college of Glasgow to possess, might have been part of a vast national museum in London, but for the indifference of the government of the day to all scientific matters.

Among those mentioned with honour in the Oration, as Hewson, Cruikshank, &c., the features of the late excellent Dr. Baillie's character are well and justly portrayed: "those great and good qualities which obtained for him, in an unusual degree, the respect and esteem of his profession; his sagacity, his knowledge, his judgment; his sincerity, his consideration for the feelings of others, and the total want of selfishness, or what may be better expressed by a phrase drawn from another language, the *abandonnement de soi*, which he exhibited on all occasions." (P. 29.) Sir Everard Home is spoken of with the gratitude of one indebted to him for acts of kindness in the early part of the author's career; and Sir William Blizard is kindly remembered.

It is mentioned that the library of the College now contains not fewer than 20,000 volumes, and is open not only in the early part of the day, as formerly, but on three evenings in a week; that a *catalogue raisonné* is in preparation; and that the lectures of Mr. Owen, the junior conservator, on anatomy and physiology, will contribute to form "a school of what may be called 'the science of life,' such as has never existed in the metropolis before:" all which is very gratifying. It is clear that the surgeons will slumber no more; but when will the physicians awake?

ART. II.—*A Letter to the Right Honorable SIR HENRY HARDINGE, K.C.B. M.P., on the Effects of Solitary Confinement on the Health of Soldiers, in Warm Climates.* By JOHN GRANT MALCOLMSON, F.R.A.S. and M.G.S., Surgeon E. I. C. Service; late Secretary Madras Medical Board.—London, 1837. 8vo. pp. 23.

WE have always been of opinion that strict solitary confinement, and also what has been called the silent system, would be found detrimental to health of mind, body, and affections. Governments, yet unskilled in the means of securing the general good behaviour of communities, are perpetually harassed with the necessity of inventing punishments, none of which have yet been devised which answer the sole useful or justifiable ends of punishments,—the deterring of the bad from crime, and the

consequent protection of the good. The civil and the military authorities are here equally impotent. Imprison a man who lives by robbing, and you secure him the comforts he chiefly wants in the winter season, without the necessity of exercising his troublesome and dangerous vocation. The treadmill, to be sure, is an unpopular exercise, and grinding corn by the hand is unpleasant; but these labours are the lot of lesser criminals, dull rogues who are only beginning their career: he knows nothing of either. He would be better pleased if you allowed him spirits and cigars; but he has food, clothing, and shelter, and, when the fine weather comes, he will be at liberty. Transport a felon, and he thanks you most sincerely: he goes to a better climate. If you hang him, he is personally more inconvenienced; but his friends cheer him at the foot of the scaffold, and it is doubtful whether the execution makes even one rogue the less. Then the soldier, flog him, and you spoil him for life, and at the expense of the hatred of the whole regiment; shut him up in a cell, and he turns sulky, loses his appetite, declines his bread, and introduces the scurvy to the care of the staff-surgeon. There is, we take it, a very plain lesson in all these failures, but men are not yet prepared to read it.

In the mean time, the plan of placing a poor devil in a situation in which all the stimuli of life are withdrawn from him does not answer. His stomach will not digest; his heart will not circulate blood freely; his brain will not secrete nervous power; the very tissues of his bodily frame become disordered, and break up. In a warm climate, these results are still more certain. "I have reason to believe," says Mr. Malcolmson, "that more real misery has arisen in twelve months from imprisonment in the great jails of India, than has been inflicted by corporal punishment in a hundred years:" and he gives a statement shewing that between thirty and sixty per cent. was the mortality in a few of these institutions in 1833 and 1834.

A strong impression exists in our minds, that whatever corps present frequent instances of punishment is badly commanded. We think Mr. Malcolmson's experience causes him to entertain the same opinion: he mentions that he has witnessed the good effects of a better system in one European corps in India, "in which, while every man was required strictly to perform his duty, the gates of the barracks were left open, and none of those annoying restrictions, once so common, were imposed. Under this system, the men were remarkably healthy; only one instance of corporal punishment occurred in several years, and solitary confinement was seldom called for."

Until April, 1832, European prisoners in India were allowed their ordinary rations, excepting spirits. General orders were then issued restricting the diet to bread and water, with such addition as a medical officer might deem necessary. The bad effects of this alteration soon became manifest, and they are clearly represented by Mr. Malcolmson in the following passage:

"I shall make no apology for subjoining a very brief outline of the effects observed to follow protracted solitary confinement, more especially where the prisoner is restricted to a diet of bread and water: reserving minute medical details for another place.

"Many men, particularly those of indolent habits, endure a confinement of four or six weeks, on bread and water, without injury to their health; but in some instances

ter period is sufficient to cause a total loss of appetite; the bread is hardly d, and, on other food being allowed, the patient is unable to eat or to digest ne stomach becomes weak; there is uneasiness across the region of the stomach, , and liver; the latter is torpid; the bowels are confined, or they are relaxed imy discharges, unaccompanied with pain, yet the swollen red tongue indicates stence of irritation of the mucous membrane of the digestive canal. The pulse k and feeble; and the clammy skin, vertigo, debility, headach, and sleepless- ew how much the constitution suffers from diminished nervous power. The scence is slow, and the treatment requires to be adapted to the enfeebled state system. The effect is, however, more clearly seen in men sentenced to six or months' solitary confinement. Two of these were in hospital at the same time, acided symptoms of scurvy: one was admitted after five months' confinement, part of which he had been allowed extra diet, at my recommendation. It was ad that, for some time previous to his removal to hospital, his daily allowance ad was removed almost untouched. He complained of pains of the limbs, he spine, and across the loins; tenderness of the shin-bones; hardness, pain, cling of stiffness of the calves of the legs, and the skin over the painful muscles a dark livid colour, from effused blood. The gums were spongy, livid, and ad; and he suffered from sleeplessness, some pain of the region of the liver, ght griping. The tongue was yellow, and its edges red.—The other had been ter time in confinement, and complained of debility, disorder of the bowels, f the shin-bones, &c. A blister was applied, which caused a foul sore, from dark coloured blood flowed on the slightest touch. My friend, Mr. James having furnished me with a report on the health of these men, two years after he regiment, I am enabled to state, that the one had hardly been out of hospi- ing that time, and had not then completed his full period of confinement; and other was very frequently on the sick list with a variety of complaints. Indeed, w men are able to undergo a long period of solitary confinement on bread and without being much in hospital during the period of sentence; and many con-) suffer from the various diseases to which men of exhausted constitutions are le in warm climates. It may not be improper to add, that I have observed ds also of prisoners confined for long periods, more especially when on a diet lieve to be destructive to their health, to become gloomy, or even furious, and d to commit every crime; a fact which was forcibly stated, many years ago, in ase of Commons, by Sir Robert Peel, in reference to the substitution of soli- ffinement for other punishments in this country. When the solitary confine- long continued, the severity of the punishment is increased in a much greater ion than the length of time, and any addition in the shape of restricted diet, ay be necessary in short confinements, is quite uncalled for; the long seclu- thout employment is itself sufficient." (P. 12.)

letter is evidently the production of a clear-headed and sensible and is calculated to do much good: we shall endeavour to make tents known where they are likely to be appreciated with effect.

II.—1. *An Introductory Lecture, delivered in the Anatomical atre of the University of Maryland, on the 1st November, 1836.* ROBERT EGLESFELD GRIFFITH, M.D., Professor of *Materia Medica, apapeutics, Hygiene, and Medical Jurisprudence*.—*Baltimore, 1836.* pp. 14.

Inaugural Address on Medical Eclectism. By JAMES CONQUEST ss, M.D., Professor of *Materia Medica* in the Medical College of), &c.—*Cincinnati, 1835.* 8vo. pp. 20.

ssors of *materia medica* have the usage, if not the right, of lecturing ll manner of subjects; and of being rhetorical, and even poetical in . IV. NO. VII. o

their public discourses. When the graver themes of cinchona and hydragrum fail them, they can dilate movingly upon errhines, and be affecting upon narcotics; lively upon opium, and smart upon snuffs. We have seen the lecture-table of one of our most distinguished lecturers on *materia medica* covered with skulls, to illustrate the physical history of mankind; and the operation of favorite medicines is, we believe, sometimes illustrated by a prodigious slaughter of the lower animals before admiring classes assembled to learn posology.

The two American professors of whose lectures we have given the titles, seem actuated by even a wider ambition, and have so astounded their hearers by their eloquence, that each lecture is published at the request of students affected with stupendous amazement. Both lectures are on general subjects, and in neither are a dozen consecutive lines to be found on the subject of *materia medica*, properly so called. Both are printed in a type somewhat difficult to read, and both on very indifferent paper.

It is really to be regretted that Professor Griffith, in whose lecture we see many opinions in which we fully concur, should have expressed himself in general so grandiloquently. After recommending, for instance, in unexceptionable terms, the combination of general information with professional acquirement, he adds, quite unnecessarily for the enforcement of his argument, the following lines:

"The flimsy garniture required for the mere business of life, like the net of the retiarius, can only be employed in the attack, whilst the substantial panoply that qualifies its wearer for every emergency, like the arms of the soldier, give a form and an energy to the limbs that command respect and ensure success." (P. 8.)

Professor Cross is a still greater offender; but there may be something peculiar in the far-west, to us unknown, which would account for the peculiarities of his address.

"Your profession," he says to the gaping and ingenuous back-woodsmen of tender age, "is in the hands of the Philistines; they have crushed its energies; they have blasted its prospects; they have covered it with disgrace; and it is now overspread by the dark and dreary night of desolation. Pause not till you have rescued it from their unhallowed keeping; rest not till you have accomplished its regeneration; sleep not till you have redeemed it from under the yoke of ignominious bondage!"

We think we see the breaking-up of a class thus addressed. The zeal of youth is extreme, and the consequences to the windows of shops are not to be calculated upon, excepting that, by the principle of *Eclectism*, some peaceful citizens may escape from the wrath of these regenerators, thus told to arise or be for ever fallen.

"We have been cut off," he continues, "from intercourse with the profession abroad. We have been sent into exile, and there has been erected in the far-west a medical empire, based upon principles so novel as to be without a parallel on earth; principles, which in their practical bearings, lead to consequences so disastrous in their character, that he who can look upon them without feeling his bosom bursting with the most painful emotions, must be dead to the voice of censure and callous to the accents of applause." And after much more to the same purpose, setting forth how the very children look upon a Western doctor "as a monster in human shape, waving aloft in stupid triumph the terrific banner of Azrael," he concludes his exhortation thus—

"Does a family emigrate to our country? They are told to eschew a physician who

has been educated in the west as they would the pestiferous effluvia of a charnel house. Shall this be? Shall the phrase '*Western physician*,' still continue the mortifying synonym of '*licensed murderer*?' Must this complimentary cognomen still remain attached to your names? No, I cannot, I will not believe it. You will rise in the majesty of strength—boldly breast the torrent, and roll back to its source the dark deluging flood of desolation."

We could quote many passages of equal fervour; but we have no wish to do so. Dr. Cross has been educated in Paris, and we doubt not that his talents and zeal, notwithstanding the superabundance of ornament with which his thoughts lie overwhelmed, will rouse the far-west men, and give them a better name.

ART. IV.—*The Cyclopædia of Practical Surgery, comprising a Series of Original Dissertations on Operative Medicine, by an Association of Physicians and Surgeons.* Edited by W. B. COSTELLO, M.D., Member of several learned Societies, both National and Foreign. Published in Parts every alternate month. Part I.—London, 1837. Royal 8vo. pp. 112.

THE press of other matter has not left us sufficient space, in the present Number, to notice the work before us at any length; but we cannot let a whole quarter pass without calling the particular attention of our readers to it. It is another of those splendid literary undertakings for which the profession is indebted to the spirit and liberality of our own worthy publishers, and is got up on precisely the same plan and in the same form as the two admirable works which have preceded it, the *Cyclopædia of Practical Medicine* and the *Cyclopædia of Anatomy and Physiology*. The array of talent combined in its execution is, if possible, still greater than on the former occasions; at least, the contributors are much more numerous, (nearly ninety,) and the list includes the name of almost every distinguished surgeon in this country, as well as a few of the most eminent in France and Germany. Judging from these premises, rather than from the contents of the First Part, which contains only the articles from *Abdomen* to *Ambulance*, we have no doubt that the work will equal its predecessors in scientific and practical value, and do honour to the surgeons and surgery of this country.

As the work proceeds, we shall feel it to be our duty to notice, from time to time, its contents, and probably to compare these with similar articles in works of the same class now publishing in Germany and France. We trust we shall have no reason to fear the comparison; but we must confess that some of the articles in the present Part are not exactly such as we could wish to enter the field with, in a contest with our scientific brethren on the continent. We must also take this opportunity of protesting, in the strongest manner, against the fashion which the editor seems disposed to adopt, of making use of a *French* or *Frenchified* nomenclature and style, altogether uncalled for, and therefore unjustifiable. If we are rich enough in surgical science to produce an English *Cyclopædia of Surgery*, surely our language is rich enough to dispense with foreign words, more especially words borrowed from a tongue so confessedly poor as the French. We quarrel especially with Dr. Costello's title, "*Operative Medicine*," which we maintain to be not at all English, and not very good French, although a literal translation

of the "Médecine Opératoire" of our neighbours. According to our reading of the phrase, we would say that it applied much better to a dose of jalap than to a system of Surgery. To say nothing of the table of contents of the work prefixed to this Part, in which we find a vast number of new and unnecessary terms from the French school, which look doubly barbarous in their English garb, we would ask Dr. Costello what such terms as *Ablation*,* *Accident* (symptom), *Adustion*, *Aide* (assistant surgeon), *Alese* (a spare sheet folded under a bed-ridden patient), *Alveoles* (sockets of the teeth, *alveoli*), &c. have to do in an *English Dictionary of Surgery*?

ART. V.—*Medical Essays*. By J. HUNGERFORD SEALY, M.D.F. A.B.—T.C.D. No. I. *Phthisis Pulmonalis, curable and incurable*. No. II. *The Imagination, its history and effects*.—London, 1837. 12mo. pp. 82 and 91.

It is with unfeigned regret that we record our opinion of these small volumes, because it may possibly give pain to their author, who, we are given to understand, is a physician highly respectable and respected, both in his private and professional capacity. But we should hold ourselves unworthy of the high office we fill, and the functions of which we have undertaken to discharge honestly, if we shrunk from recording our judgment of any book that comes before us, when circumstances seem to require that we should notice it at all. Most persons, we suspect, on reading the present work, will be disposed to set it down as the production of some youth, alike undisciplined in logic and medical science, who, undeterred by the remonstrances of his wiser and more experienced friends, and listening only to the suggestions of literary vanity, has rushed headlong to the press with the crude fruits of his first scientific studies; and, although we see, from the preface, that this is not exactly the case, we are still disposed to believe that, in a moment of weakness, Dr. Sealy has been tempted to present to the public what may have pleased his own undisciplined judgment when composed, but which ought never to have been permitted to leave the academic portfolio where it was originally deposited. We confess our surprise that any physician, acquainted with the present state of medical science in this country, should have thought of committing such a work as this to the press. It certainly would not be very easy to find in our recent literature, physiological and pathological speculations less supported by facts or reasoning than those contained in the first of these volumes; while the metaphysical and ethical lucubrations in the second, set all the principles of intellectual philosophy, old and new, and all sound logic, at defiance. The work is hardly less defective in a literary point of view; the language being incorrect and careless, and disfigured by much bad taste. Our chief reason for noticing the work is, to warn our inexperienced readers

* In this short article, which the editor has translated almost verbatim from the *Dictionnaire de Médecine*, the author informs us that Hippocrates applied the term to any sort of evacuation. This, we find, is taken from the original statement in Castelli's Lexicon, (art. *Ablatio*), and is so far true as applied to the Greek synonym *ἀπαρραγή*; but it surely sounds somewhat oddly, in defining the meaning of a Latin word, to refer to a Greek author.

being misled by doctrines which possess certainly one feature of *novelty*, and which are announced with some degree of pre-

The first essay is stated by the author to be "an attempt to show those forms of phthisis pulmonalis which are curable from which are incurable," and to contain "a novel view of scrofula and tubercular depositions;" and, in the second, he "trusts that the high he has set forth of the great powers of the imagination, and the importance of its culture and direction, will find an echo in the hearts of each and all of his readers."

—*An Address delivered to the Members of the Worcestershire Natural History Society, on the Opening of the Worcestershire Museum, September 15, 1836.* By CHARLES HASTINGS, M.D. F.G.S. London, 1837. 8vo. pp. 57.

How much medical science, strictly so called, is improved and advanced by the knowledge derived from the study of the collateral (we wish to lose no opportunity of pointing out to our readers, especially our younger readers,) the great importance of attending to and prosecuting their studies. Natural history, in particular, has claims to their notice, as every branch of it is calculated to afford not merely amusement of the most interesting, varied, and useful kind, but information of the greatest value in regard to the theory and practice of medicine. The present discourse, the production of a man to whom the medical profession in this country is under the greatest obligations, is well calculated to inspire a love for the useful science: we, therefore, strongly recommend it to our readers.

It contains an exposition of the happy results flowing from the cultivation of institutions for the cultivation of natural history; on the advantages and pleasures derived from the study of this science, and a succinct account of the progress of natural history from ancient times. It is earnest and eloquent, and displays at once the science and good feeling of its excellent author.

I.—*Dissertationis de Signis Mortem hominis absolutam ante mortis accessum indicantibus particula prior et posterior.* Auctore G. SOMMER, M.D.—Hafniæ, 1833. 8vo.

Translation on the Signs of certain Death, previously to Putrefaction. By G. SOMMER, M.D.—Copenhagen, 1833. Two Parts. 8vo. 7.

Knowledge of the signs of real death is certainly of the greatest importance, not only to the medical man, but to everybody, and authors have done right in endeavouring to ascertain such as might be relied on in all cases. From want of such knowledge, the earlier and chroniclers relate many instances of men that were buried as dead yet only were apparently so. Some of these are not wholly admitted, and the possibility of such an accident occurring must at least be allowed, as long as the study of the signs of real and apparent death was neglected. Even now, when so much has been written and observed concerning this subject, it is so far from being fully illus-

trated, that the best-informed will be still liable to mistakes. On that account we welcome every more exact investigation of those signs of death which have been delivered to us as guides in doubtful cases; and the author of the two small volumes now before us has therefore, from the mere choice of his subject, a just claim upon our thanks.

The signs of real death are most conveniently divided (1) into those which take place *before* putrefaction, and which precede it, and (2) into those which accompany putrefaction. Several authors have asserted that only putrefaction itself, and the other phenomena connected with it, are to be considered as *true* signs of absolute death, and to put it beyond all question; and that those signs, on the contrary, that belong to the first category are never to be trusted. Yet it is clear of what importance it must be to the medical man to be able to form an opinion as to real or apparent death from the signs before the commencement of putrefaction: for instance, in camps, during epidemic contagious diseases—when, to prevent contagion, the dead must soon be removed, &c.

The positive signs of real death before putrefaction are derived either (1) from the quality of the causes that might have occasioned them; or (2) from the evident want of all the functions that indicate life, even in its slightest manifestation; or (3) from the inefficacy of the surgical or other means used during a sufficient period to recall life. It is particularly the signs of the second class that often create a doubt.

The diagnostic signs that precede real putrefaction are in general stated to be the following:—(1.) The body is quite cold. (2.) A general stiffness of all the parts (*rigor cadaverosus*,) has arisen. (3.) The circulation of the blood has ceased; neither pulsation of the arteries nor of the heart can be perceived. (4.) Blue and red spots and streaks are observed, particularly on the posterior parts of the body. (5.) Respiration has quite ceased. (6.) No mobility of the parts exists, but elasticity and contractility are gone; and (7.) No remains of sensation can be detected.

These principal signs of real death, as quoted by authors, Dr. Sommer resolved to examine more closely; and, though his work was merely written as an inaugural dissertation, for the purpose of obtaining the degree of doctor of medicine; yet it is so very superior to the generality of dissertations of this class, that we feel it incumbent on us to call the attention of the profession to it. It contains much interesting and much valuable matter; some new, some not new but renovated and strengthened by new experiments. Of all the signs of death before putrefaction, Dr. Sommer lays the greatest stress upon the *rigor cadaverosus* as the surest test. But our principal object, on the present occasion is to direct the attention of the reader to a phenomenon not hitherto noticed, which, according to the experiments and investigations of the author, only takes place in the really dead body, and in certain cases may become of importance as a sign of death. Dr. Sommer is fully entitled to the credit of having been the first to observe, or at least to communicate to the profession, this new sign of death: it is a *blackish hue of the sclerotica of the eyes*.

“Most of those who die,” says Dr. Sommer, “have the eyelids half opened; when, immediately after death, I examined the body, I observed a natural, equable whiteness of the sclerotica; but after the expiration of one, two, or three hours, the colour of this membrane was observed to be *yellow* in that part of it which had been exposed

to the air and to the light between the opened eyelids; while that part of it that had been covered by the eyelids yet possessed its natural white hue. In a man, who had died with the eyes open, the sclerotica acquired a *blackish blue colour*."

This excited the attention of the author, and he instituted the following experiment upon the dead body of an individual who had died from inflammation of the intestines, as a consequence of incarcerated hernia. Of the right eye he fastened the eyelids carefully down, by means of sticking-plaster and a bandage, in order to exclude entirely the action of light; but of the left eye he drew the upper eyelid up, and kept it in this state by means of sticking-plaster, so that the whole cornea and a great part of the sclerotica remained exposed to light. After the expiration of five hours, he then examined both eyes, and found the sclerotica in the *right* (closed) eye quite white, but that in the *left* (opened) just as far as it had been exposed to the light, of a yellow hue, which near the cornea changed to *black*. The cornea of the *left* eye was also *opaque*, but that of the *right*, *transparent*.

The same phenomenon took place in all the dead bodies on which this experiment was instituted, provided it was made during the first hours after death, before the eyeball had collapsed. The greater the natural distension or fulness of the eyeball, the more distinct is the blackish blueness; but afterwards, when the eyelids are brought together, and particularly when the eyes become depressed, it diminishes very much, or disappears altogether. This colour arises often very soon after death, forming then usually a triangle, with its base directed towards the cornea (where the colour is most marked), and with its point situated at the external angle of the eye.

Sometimes also in collapsed eyes this change of colour is produced, but never to the same degree as in those still retaining the natural turgescence. It is likewise found that this change of colour is greater and more equal in the sclerotica, at the external angle of the eye, than on the other parts of it: in these it is slighter and dispersed in spots. When the eyelids again are closed, the hue on the next day becomes so altered, that it is only *yellow*, a hue, which is likewise sometimes met with in collapsed eyes that have not been kept open.

The author has never observed such a remarkable change of hue in individuals still living; only in some typhous and phthisical patients, during the agonies of death, bluish spots have been formed at the external and nether part of the sclerotica, which, after death, assumed the afore-mentioned hue. Something similar has been remarked in patients with the Asiatic cholera, but in these cases *beneath* the cornea.

The author ascribes this phenomenon, which he at first was inclined to attribute to the exudation of the black pigment through the choroid, (but which opinion was disproved by an anatomical dissection,) to the *exsiccation* of the sclerotica and the *adnata*. The sclerotic is exsiccated in the same manner as other fibrous membranes after death, by the access of air, and becomes transparent, so that the choroid and the black pigment shine through it; only that part, that is exposed to the air changes its hue. This conjecture is supported by the result of an experiment which Dr. Sommer instituted on an individual recently after death, whose eyes still preserved the natural tension. He drew the lids up, exposed the eyes to the air, and kept one eye constantly moistened with water, but the other eye dry. After the expiration of two hours, he found the

sclerotica of the moistened eye, as white as at the moment of death, but that of the other, very blue. That the change of colour is not so marked in collapsed eyes, is undoubtedly owing to a partial dissolution and beginning decomposition of the black pigment.

That the blackish hue is most distinct *near the cornea*, must be explained by the fact of the black pigment lying in thicker layers at this part of the eye; probably also from greater thinness of the sclerotica at this part. Yet the change of hue does not extend itself into the margins of the cornea; there is always as much as a line in breadth around the cornea, where the black hue either is not observed at all, or is very inconsiderable; and this may be explained by the presence of the ciliary ligament in this place. The hue is perhaps not perfectly black, because the colour of the *tela cellulosa* in the sclerotic and choroid is yellow, and the sclerotic itself white. That the blueness of the eyes is diminished, or fades entirely away after the closing of the eyelids, may arise from the exsudations which take place in all dead bodies, and by which the eyeball is moistened.

The author does not claim the name of a perfectly sure sign of death for the phenomenon above described, and modestly requests his medical brethren to institute experiments themselves with regard to it; if it should be confirmed as a certain sign, it will be admitted to be of the more importance, as it shows itself quickly after death, and is easily observed.

ART. VIII.—*A Dictionary of Practical Medicine; comprising general Pathology, the Nature and Treatment of Diseases, &c.* By JAMES COPLAND, M.D. F.R.S. &c. Part IV.—London, 1837. 8vo. pp. 304.

As the first two parts of this Dictionary were published before we commenced our labours in this Journal, and as the remaining two parts are promised before long, we shall defer our notice of the work until it is completed. We cannot, however, allow this opportunity to pass without bearing testimony to the extraordinary merits of the publication, and recommending it, in the strongest terms, to the attention of our readers. Considered as the production of an individual, this work is one of the most extraordinary that has ever appeared, for its size, comprehensive-ness, accuracy, and learning; and, although necessarily inferior in certain respects, from its very plan, to some works of a like kind, the composition of a large body of writers associated for the purpose, it is superior to these in the general unity of the principles and practice laid down in it, and assuredly excels them all in depth and variety of research. For a practical work, it is, indeed, almost too learned; as the student is liable to be perplexed by the extreme variety of views and opinions cited from the writers of all times and countries; but this, if a fault, is certainly one on the right side, and one which we should be glad to have more grounds for complaining of in some other works of a like kind.

The present part contains the subjects from *Fever* (Remittent) to *Heart* (Hypertrophy of), inclusive. We sincerely hope that the learned and indefatigable author may be enabled to complete his undertaking within the time stated; although we are too well acquainted with the nature and extent of his labours to blame him if this should not be the case. At any rate, whenever complete, this work must remain an imperishable monument of his talents, learning, and industry.

PART THIRD.

Selections from the Foreign Journals.

ANATOMY AND PHYSIOLOGY.

On Artificial Digestion. By Prof. MÜLLER and Dr. SCHWANN.

"Archiv für Anatomie und Physiologie" for 1836, we have two long and interesting papers on artificial digestion. The first is by Professor Müller and his assistant, Dr. Schwann, conjointly, and refers exclusively to the artificial digestion of coagulated albumen and boiled muscular fibre; the second is by Dr. Schwann alone, and has reference more particularly to the nature of the digestive process. The two papers occupy upwards of seventy pages; our limits permit us, therefore, to give only a very meager outline of some of the most important facts which they contain. Professor Müller was induced to undertake the investigation of artificial digestion by the publication, in 1834, of Eberle's "Physiology of Digestion," in which it is maintained that, although neither diluted acids nor mucus separately possess the power of dissolving organic substances, that property resides in acid-mucus, which is capable, not only of dissolving albumen and muscular fibre, but of entirely changing their chemical nature, by converting them into caseine and salivin. In the winter of 1834-35, Professor Müller had the satisfaction of convincing himself of the accuracy of Eberle's statements, and, in the following, he and Dr. Schwann undertook the following series of experi-

They proceeded first to determine the action which diluted acids produce upon coagulated albumen, and for this purpose small cubes of boiled muscular fibre and coagulated albumen, cut so as to present sharp edges and corners, were digested in common test tubes, with diluted acids, at a temperature of 30° R. At the end of twenty-four hours, digestion in dilute muriatic acid had produced no change in the appearance of the albumen or muscle, and, at the end of twenty-four hours, they merely become somewhat more friable. Twelve hours' digestion in diluted acetic acid produced only a slight swelling of the cubes, and, at the end of twenty-four hours, the corners and edges still retained their sharpness. Longer digestion produced a gradual separation of the muscular fibres, but these were in no instance dissolved into a pulpy mass. A like result was obtained from digestion with oxalic, lactic, and lactic acids.

Müller and Schwann next proceeded to test the properties of acidified mucus. For this purpose, the mucous coat of the fourth stomach of the calf was carefully scraped off, and dried. The dried membrane was then cut into small pieces, and placed in test tubes, half an inch in diameter, and so much distilled water was added as to stand about three-fourths of an inch above the membrane, after the membrane had ceased to absorb. Into two of these tubes from six to eight drops of acetic acid were dropped, and into other two from twelve to fourteen drops of acetic acid. Another tube contained pieces of the mucous membrane, with water and another, the same quantity of water as the other glasses, with eight drops of muriatic acid, but no membrane. Into these glasses cubes of boiled albumen and coagulated albumen were introduced. After digesting for twelve hours at a temperature of 30° R., no particular change was found to have taken place in the two last-mentioned cases; but, where the acid had been added to the albumen and membrane, the fragments of muscle had become greasy and puffy on the surface; they had lost the sharpness of their corners and edges, and their fibres

could not be distinctly recognized. The albumen was puffy and translucent on its surface, soft and cheesy in the centre, and, by continued digestion, was completely softened and dissolved.

It appears to be immaterial whether pure mucus, or merely portions of the mucous membrane, be employed to prepare the "digestive fluid;" but Müller considers that the efficacy of the latter does not depend upon the membrane as such, but upon the mucus which is contained in its numerous follicles. The quantity of acid required to form a good digestive fluid is extremely small; about 3.3 grains being sufficient for two drachms of membrane and water taken together.

The question whether the solution of the coagulated albumen is a simple change of aggregation, or whether a chemical alteration ensues, next comes to be determined. To decide this point in as simple a manner as possible, sixty grains of dried mucous membrane were digested with acidified water for eighteen hours, at a temperature of 18° R.; eighteen grains of coagulated albumen, cut in cubes, were then introduced into the fluid, and allowed to digest for twenty-four hours, at a temperature of 20° R. By the digestion the albumen was deprived of its white colour, and became yellow, the edges and corners of the cubes were dissolved, and their consistency was so small that they broke down into pulp beneath the finger. The softened albumen was washed and kneaded in distilled water, and the emulsion thus formed thrown upon a filter. The same process was repeated twice with some slight alteration, but with the same result. The clear fluid which passed through the filter was tested in various ways, and the experimenters arrived at the conclusion that the albumen undergoes a chemical change, and is converted into osmazome, salivin, and a third peculiar principle, the nature of which it will require further experiments to elucidate.

It being therefore evident that acidified mucus produces a chemical change in the albumen, it became necessary to investigate the nature of the process. Some analogy seemed to exist between the process of fermentation and that of artificial digestion; and the question immediately presented itself whether, during the latter, there takes place any evolution of carbonic acid, or absorption of oxygen, and consequent oxygenation of the albumen. Experiment shewed that artificial digestion produced no change in the definite proportion of oxygen and nitrogen as they exist in the atmosphere. The process was unaccompanied either by evolution of carbonic acid or of any other gas, and proceeded quite as well in full and hermetically sealed tubes as in contact with the atmosphere. It is true that a very small quantity of carbonic acid was evolved during the process, but not more than would have been produced by any animal fluid. There was also a slight absorption of oxygen, which in all probability depended upon the tendency which osmazome has to acidify when in contact with the air. The fact, however, that digestion proceeds equally well when the contact of the air is prevented, and the very minute quantities of the evolved carbonic acid and absorbed oxygen, convinced our experimenters that the change produced in the albumen is not owing to oxygenation. They are still disposed, however, to consider the process as in some measure analogous to that of fermentation; and they regard the peculiar digestive principle which resides in the mucus as supplying the place of ferment. The nature of the process and the properties of the digestive principle are more fully considered in the second paper, of which we shall now give an abstract.

Mucus, it has been ascertained, is insoluble in acids: Dr. Schwann found, however, that filtration did not deprive the digestive fluid of its peculiar properties, and consequently the opinion that these were derived from the mucus, was considerably weakened. To elucidate this subject, about two pounds of the mucous membrane of the third and fourth stomach of the ox were cut into small pieces and mixed with water, to which about two ounces of muriatic acid were added, and the whole was then digested for twenty-four hours, at 32° R. The greater part of the membrane was dissolved, and there resulted a troubled opaquish liquid, mixed with undissolved mucus and shreds of membrane. After filtration, there remained about three-fourths of a quart of a dullish, yellow fluid, which, even after standing for months, deposited no sediment, and contained 2.75 per cent. solid contents.

This liquid we shall term A. The undissolved residue was treated with fresh water and acid, and gave about half a quart of filtered liquid, which we shall term B; and the proceeds of a third digestion we shall term C. The acid contents of each of these three solutions were nearly equal; two drachms of each requiring about 2.5 grains of carbonate of potash respectively for saturation. Cubes of coagulated albumen were introduced into glasses containing portions of each of these solutions. Twelve hours sufficed for the liquor C to finish the digestion; it proceeded slower in A; but the power was increased by the addition of acidified water, while a like addition diminished that of C; and hence it appears that the digesting principle was contained in greater quantity in A than in C.

The next question to be solved was, whether acid was necessary for carrying on the process of digestion, or whether it served merely to call into action some other principle, which, once formed, was sufficient to carry it on without further assistance. To ascertain this point, the digestive liquor was neutralized with carbonate of potash: the digestive power was thereby destroyed, but was again restored by the addition of acid. It has already been shewn that acid alone possesses no digestive power: on what principle, then, does the acid act? Does it, in the first place, serve merely as a menstruum of the digestive principle; or, 2dly, does it form with it a peculiar chemical combination, analogous to the acid salts, which then effects digestion; or, 3dly, is the acid necessary for the solution of the product of digestion; or, 4thly, is it decomposed during the process to enter into combination with the product; or, 5thly, does it, by simple contact, predispose the digestible bodies to decomposition, without undergoing decomposition itself? In order to solve the first question, rather more than the half of the acid of a portion of the liquor C was neutralized; but still leaving a decided acid reaction, and without producing opacity in the liquid. The digestive power was destroyed, and the question answered in the negative.

Were the second the true view of the case, it would be necessary to shew that the acid always bears a relative proportion to the quantity of digestive principle contained in any menstruum. The contrary was proved by the following experiment:—To two drachms of distilled water 4.8 grains of the liquor A were added, and a like quantity to two drachms of acidified water, the acid of which was in the same proportion as in the normal digestive liquor. The degree of dilution of the digestive principle was in both cases alike; the quantity of acid alone varied. After twenty-four hours' digestion, no change had been produced in the albumen by the first mixture; by the second, it was completely dissolved. The same experiment is considered to disprove the third proposition; and the fourth is disproved by the fact that the same quantity of carbonate of potash is required to saturate the liquor after as before digestion. We are therefore forced to accede to the opinion that the acid acts merely as the predisposing agent of the decomposition, exactly in the same way as the diluted acids act in the conversion of starch into sugar when boiled.

We have now to enquire in what manner the digestive principle itself acts in producing artificial digestion. There are only two ways: either it must be by one of the chemical processes by which bodies are dissolved, or else it must be referred to the power of simple contact, analogous to that exercised by yeast during the process of fermentation. To determine this point, the following experiments were instituted:—It was first necessary to ascertain the quantity of digestive principle required for the digestion of a given quantity of albumen; and, for this purpose, two drachms of the digestive liquor, A, were introduced undiluted into a tube, *a*; into another tube, *b*, were introduced two drachms of acidified water, containing eight per cent. of the same digestive liquor; a tube, *c*, contained four per cent.; *d*, one per cent.; *e*, one-half per cent.; *f*, one-fourth per cent. of the same liquor; and, lastly, *g* contained simple acidified water. Into each of these glasses pieces of coagulated albumen were introduced. After twelve hours' digestion, the albumen in the glasses *b* and *c* was entirely dissolved; in *a* and *d*, it was very soft and translucent, but the form of the pieces was still easily distinguishable. In *e*, and even in *f*, a very manifest change was observable in the albumen; but in *g* it remained unaltered.

Again, to ascertain in what relation the digestive power of diluted and of undiluted digestive liquor stands to each other, the following experiment was performed:—A drachm of moist coagulated albumen was rubbed up with 4.8 grains of the liquor A, and two drachms of acidified water were afterwards added; a like quantity of albumen was introduced into two drachms of the undiluted liquor; and both mixtures were then digested for twenty-four hours. The albumen in both cases had almost entirely been dissolved. Thus, 4.8 grains of digestive liquor, containing 0.11 grains of solid ingredients, had sufficed to cause the solution of sixty grains of moist albumen, or of about ten grains of solid matter: that is, one grain had sufficed to produce the decomposition of 100 grains; a proportion which is known to occur only in the process of fermentation. In a set of experiments instituted to prove that the digestive principle is itself decomposed by the process, it was clearly ascertained that the digestive power of the liquor was destroyed, or at least greatly weakened by it; but it is impossible, in the present state of our knowledge, to determine the intimate nature of this change.

It still remains to determine the nature of the digestive principle. Eberle identified it with mucus: if such were the case, a saturated solution of mucus should possess digestive powers in an eminent degree. To ascertain this point, Dr. Schwann digested pure mucus, obtained from saliva, with a large quantity of acidified water: the greater portion of the mucus remained undissolved. Into the solution thus obtained albumen was introduced; but, after several days' digestion, no change was perceptible. On the other hand, he found that, when mucus, obtained in the same manner, is digested with a small quantity of acidified water, a solution is obtained which possesses digestive properties; he therefore infers that the digestive principle is not identical with mucus, but is either a new principle formed by the action of the acid upon the mucus, or some other peculiar principle which exists in the latter in small quantities.

It was next necessary to determine the nature of this peculiar principle, and for this purpose its behaviour towards various reagents was tested in the following manner:—To a quantity of the liquor, B, some reagent capable of producing a precipitate was added, and afterwards a bit of coagulated albumen. If the digestive power was found to be destroyed, some other reagent capable of neutralizing the first was added; and, if the power were thus restored, it became necessary to determine whether it had been recovered from the precipitate or from what remained in solution. For this purpose, the precipitate was collected upon a filter, and it and the filtered solution tested separately, according to general chemical rules. The results of these experiments show the digestive principle to be possessed of the following properties:—It is soluble in water, in diluted muriatic and in acetic acids; it is decomposed by alcohol and the boiling temperature; it is completely precipitated by acetate of lead, both from its acid and neutral solutions, and from the latter by corrosive sublimate. It is not precipitated by ferro-cyanate of potash, and infusion of galls destroys the digestive power, probably by forming an insoluble precipitate. These properties mark the digestive principle as a peculiar substance, distinct from osmazome, mucus, albumen, salivin, or casein. Dr. Schwann has hitherto been unsuccessful in his endeavours to isolate it, but the following plan of analysis is that which he considers as most likely to lead to that result. Precipitate with ferro-cyanate of potash, and filter. The filtered liquor contains osmazome, salivin, and the digestive principle. Neutralize with carbonate of potash, and precipitate with corrosive sublimate. Osmazome and the digestive principle are precipitated; salivin remains in solution. Wash the precipitate with great care, then add water acidified with muriatic acid in the same proportion as it exists in the digestive liquor, and decomposed by sulphuretted hydrogen. The digestive principle, and perhaps also the osmazome, are redissolved; but the great difficulty would consist in separating them. One of the best tests for the detection of the digestive principle is the property it possesses of coagulating milk; although, till we succeed in isolating the principle, some doubt must always obtain as to its being the agent of coagulation. Two grains of the digested liquor, A, sufficed to produce the coagulation of two drachms of cow's milk, when heated in the vapour—

in one minute and a half; one grain required two and a half minutes; and a grain four minutes, to produce the same effect. As a temperature of 60° was found sufficient to destroy the coagulating power, it is evident that it does not be ascribed to the small quantity of acid contained in the digestive

conclusion, Dr. Schwann remarks, that these experiments are not to be considered as applicable to the digestion of every substance, but to such only as are dissolved in the same manner as coagulated albumen. To the latter, his experiments showed, belong the fibrine of the blood, the raw and boiled muscular fibre of the flesh of roast beef and roast veal; but the digestive liquor produced does not change upon gelatine, casein, starch, and gluten, than what simple distilled water equally produces. It is worthy of remark, however, that the process of the digestion of these substances (if we except starch,) with simple acidulated water, agreed, in their more essential characters, with those ascribed by Tiedemann and Gmelin to those produced by their natural digestion in the stomach and hence Dr. Schwann is inclined to believe that curd, gelatine, and albumen may be dissolved and digested simply by the free acid of the gastric juice. This explanation, however, will not suffice for the digestion of starch, which, according to Tiedemann and Gmelin, is converted by digestion into gum and dextrin; no such change is produced by simple digestion with acidified water; but, if starch be digested for twenty-four hours with acidified saliva, no change of color will be produced by the addition of iodine in the filtered solution, which is found to contain sugar and gum. This change agrees with that which, according to Tiedemann and Gmelin, is produced by natural digestion; and if a corresponding change does not ensue from the action of the gastric juice, a solution of the problem will perhaps be found by taking into consideration the quantity of swallowed saliva.

Müller's Archiv. Jahrgang, 1836. Heft i.

Observations on Weber's Experiment on the Power by which the Head of the Thigh Bone is retained in the Acetabulum. By DR. LAUER, Assistant Surgeon at the General Hospital, Hamburg.

A FULL account of Weber's experiments has been given in a preceding number of the *Journal*. (Vol. II. p. 236.) His proposition is, that the head of the thigh bone is retained in situ, not by the power of the muscles or ligaments, but by the pressure of the surrounding atmosphere, and he draws from this several deductions concerning the physiology and pathology of the hip-joint. Dr. Lauer repeated the experiment under the direction of Dr. Fricke with nearly the same results, and thinks that the conclusions drawn from it by Weber are deficient in proof, and too general a nature.]

The force exerted by atmospheric pressure on the head of the thigh bone, is equivalent to the weight of a column of air the base of which is equal to the superficial area of the head of the bone, or to the weight of a column of mercury of the same base and of a height equal to that of the column of an ordinary barometer. Assuming now that the superficial area of that part of the head of the bone which is covered with cartilage is from five to seven inches square,* and fixing the average weight of the column of a barometer at 28.409 Vienna inches, and taking the weight of a column of mercury of the given height and a quarter of an inch in diameter, at 12.6 pounds, we find the force with which the pressure of the atmosphere acts on the head of the bone, to be equal to from 63 to 88.2 pounds. Now, supposing that the head of the thigh bone is retained in the acetabulum by no other force, it would require a power equal to this weight, and acting in the direction of the neck of the bone, to separate the head of the thigh bone from the acetabulum, which, plainly, is not the case.

How different is a relaxed dead muscle from a living contractile one! How different at least with respect to sensation! Leaving out of view the proper con-

the superficies of the largest head examined by Dr. Lauer was 6½ square inches.

tractile power of the latter, its mere vital tone, a property which the former does not possess, must contribute to this object. When a temporary contraction of the muscles of the hip-joint, whether effected through the agency of the will or by other causes, produces a transient or permanent shortening of the limb, and, vice versa, a relaxation of these muscles is followed by its elongation—facts first pointed out to me by Dr. Fricke, and of which I have daily opportunities of convincing myself—are we not justified in assuming, that muscles in the normal condition, even when at rest, are, by means of their vital tonicity alone, capable of at least contributing to retain the head of the thigh bone in the acetabulum? In making these observations I am far from denying the influence of atmospheric pressure in effecting the same object. Can the shortening of the limb which occurs in the first stage of coxarthrocase, before the head of the bone has undergone any change of form or situation, and which admits of being demonstrated by the measuring rule, be explained by a supposed partial increase of atmospheric pressure? Can the shortening of the lower extremity produced by contusion of the muscles of the hip-joint, and removed by the application of leeches or cupping glasses, be accounted for by variations in the pressure of the atmosphere? Are we to attribute to the same cause the elongation of the thigh observed in that form of disease to which Dr. Fricke has applied the term *coxalgia*? In the former cases, however, the muscles are found to be evidently tenser and harder to the touch, in the latter, laxer and softer.

Weber's experiment has proved that atmospheric pressure is in itself sufficient to prevent the sinking of the head of the bone out of the acetabulum, when the limb hangs at rest; but would it, even were its power much more considerable, prevent the head of the bone from slipping out in violent motions, as for instance, in forcible divarication of the lower extremities, which some men can perform to such a degree without consequent luxation, that the outstretched axes of the lower extremities fall in a straight line and form an angle open superiorly? Here the muscles must certainly cooperate in a very remarkable manner, sometimes one portion, sometimes another, acting more powerfully according to the necessities of the case.

It is well known that travellers on very lofty mountains suffer many and obvious inconveniences from the diminution of atmospheric pressure, but I do not recollect that relaxation of the coxo-femoral articulation has been classed among them. It is true, a sense of fatigue has been very frequently noticed, but this in general is speedily removed by a short repose, and can scarcely be attributed to any peculiar relaxation of the hip-joint. Yet Saussure's barometer did not stand higher than sixteen Paris inches on the summit of Mont Blanc, and on Chimborazo, at a height of 6004 meters, Boussingault's stood no higher than 13 inches $8\frac{1}{2}$ lines.

As to the ligaments, they are, with reference to this connexion, of much less importance. Still, in our experiments, we found that after boring through the acetabulum, not more than two thirds of the head of the thigh bone descended from the socket, as long as the capsular ligament remained entire; but when this was divided, the ligamentum teres opposed no further obstacle to the descent of the head of the bone, only, however, when this was effected by the weight of the limb itself, or (when the body lay horizontally) by traction acting downwards and pretty much in the direction of the axis of the acetabulum. But, if we attempt to make the head of the bone slip out of its cavity by forcible abduction, as occurs in cases of luxation from violence, the ligamentum teres certainly offers some opposition, and a complete removal of the head of the bone from the socket is effected only by employing a force capable of rupturing the round ligament.

If we turn to the use which Weber has made of his discovery in explaining spontaneous dislocation, we learn from him in the next place, that, occasionally, in men otherwise healthy, the head of the bone suddenly sinks out of the acetabulum. As far as I can recollect, no observation of this kind has been hitherto made. He says further, "Since the head of the bone is not, as far as we have seen, retained in the acetabulum by the power of the ligaments, we should not, in attempting to explain the origin of this affection, assume that the ligaments must be elongated

generally changed, before the head of the bone can quit the acetabulum. We see that this has occurred when air has got into the cavity of the joint above the head of the bone. But it is not necessary that the substance which gets in should be air. It may be a fluid secreted into the joint by the blood-vessels or it may be a solid substance growing within it. In proportion to the increase of the fluid or other substance formed there, the head of the bone sinks by its own gravity, without being necessarily forced down, and without any resistance being offered on the part of the ligaments."

It is certainly true, that the head of the thigh bone may sink to a certain extent out of the acetabulum without any preceding change in the ligaments; but before this happens completely, and in such a manner as to give rise to actual spontaneous luxation, they must certainly have suffered some alteration. It likewise cannot be denied, that a fluid situated in the cavity of the acetabulum above the head of the bone, or a solid substance formed in the same situation, may give rise to a dislocation of the same kind; but abstractedly from that point, that this occurs only in the rarest cases of spontaneous luxation, the bone does not sink out of the acetabulum during this process by its own weight, but is actually forced out. It is true that a few drachms of fluid are not sufficient to overcome the force of atmospheric pressure; but a fluid of this description is incompressible, and where it is, the head of the bone cannot be, and even the greatest degree of force capable of being exerted by the muscles is insufficient to retain it in the cavity. Weber himself says the same thing in an indirect way, and therefore involves himself in a contradiction; for he says, "the sinking of the head of the bone is in proportion to the increase in the quantity of the fluid." This case is of course quite different with which has forced its way through a hole in the acetabulum; for this is in communication with the whole atmosphere, and therefore presses the head of the bone downwards with the same power as it is pressed upwards by the operation of the same fluid, so that the limb can now obey the impulse of its own gravity.

The experiments in question, according to my opinion, afford the following anatomical, physiological, and pathological results:

1. The head of the thigh bone completely fills the acetabulum, and the opposed surfaces are adapted to each other.
2. The pressure of the surrounding atmosphere is to be classed among the means by which the lower extremity is kept in apposition with the trunk of the body.
3. A spontaneous sinking of the head of the thigh bone out of the acetabulum may occur under certain circumstances without any preceding change in the ligaments.

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A single Artery for the two Ventricles of the Heart, Cyanosis.

M. BARON presented to the Academy the heart of an infant, born on the 22d of November. It was brought to the Infirmary on the following day, in a state of aeral cyanosis. The beatings of the heart sounded obscurely, and there was a *sû de soufflet*. No other symptom was observed until the 2d of December, when diarrhoea and vomiting occurred: the child died on the 7th of December. On examination after death, the heart was found to possess but one artery, the aorta, which arose from both the ventricles. Between these two origins, the interventricular septum formed a kind of spur (*éperon*?) There was no opening in the left ventricle for the pulmonary artery. The arch of the artery gave off from its convexity the usual branches. From its concavity proceeded a branch, the ductus arteriosus, which divided into two branches, forming the pulmonary arteries. At the point of the bifurcation of these two branches arose another, which was the coronary artery; it passed obliquely towards the base of the right ventricle, where it ended in a blind cavity. An injection was forced into this vessel, but the fluid did not pass into the ventricle.

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On the Action of the Acetate of Lead upon the Animal Economy.

By Professor C. G. MITSCHERLICH, M.D.

AFTER some preliminary observations, Dr. Mitscherlich proceeds to investigate the specific action of lead upon the system. He considers, in the first place, the most important combinations which acetate of lead forms with the constituent parts of the animal economy; and, secondly, its relations to the animal solids and fluids. He next gives the results of experiments on animals in which the acetate was administered in large and small doses; in substance and in solution, or as forming a peculiar compound with albumen; and in which it was either introduced into the stomach or applied externally to wounds. The paper is concluded with the analysis of the blood and urine, and a general summary of the results of his experiments.

I. His first set of experiments, undertaken to ascertain the reciprocal decompositions of acetate of lead and the chief animal compounds, render it probable that the oxide of lead unites in different proportions with albumen and acetic acid to form definite compounds, some of which are soluble and others insoluble in water.

Several other organic principles enter into analogous combinations with lead. A few drops of acetate of lead produce in milk a copious precipitate of casein; and the filtered liquid, provided the milk was in excess, contains but a mere trace of lead. Salivin produces in solutions of acetate of lead a white precipitate, soluble in excess of salivin, completely soluble in muriatic acid, and which forms a troublesome solution with acetic acid. Acetate of lead produces in solutions of osmazome a precipitate, insoluble in water and acetic acid, but soluble in excess of acetate of lead and in muriatic acid. With gelatine it forms soluble compounds, and with Schwann's digestive principle, prepared by digesting the mucous coat of the stomach of the calf in water acidified with muriatic acid, it forms a white precipitate insoluble in acetic, but soluble in muriatic acid.

From these statements it follows, that lead forms with casein a compound which in the stomach would be almost totally inert; while the compounds with salivin, osmazome, and the digestive principle would be called into activity by the action of the free acid of the gastric juice.

With mucus lead forms an insoluble compound, and it is probable most of the lead introduced into the stomach passes through the intestines in this inert combination. Lead does not appear to unite with fibrine, but it is rather probable that it forms with the red colouring matter of the blood a compound soluble in water.

When a muscle either dead or living is steeped in a solution of acetate of lead, it undergoes a chemical decomposition. The external layer becomes white, and gradually, but very slowly, the change extends to the deeper-seated fibres. A similar process takes place in the other organs of the body, as is daily seen in ulcers. A like decomposition ensues on every secreting surface between the secretion and the salt of lead, and only when the latter is in excess does it attack the subjacent organ. Consequently when small doses of acetate of lead are introduced into the stomach the salt is completely decomposed by the gastric secretions, and the mucous coat is not attacked; but when the doses are so large as only to be partially decomposed by the secretions of the stomach, the mucous coat of the stomach is attacked and corroded. A like corrosion ensues in all the organs of the body by similar doses; it is purely chemical, and takes place equally in the dead and living animal; but the decomposition is modified in the latter case in so far as life augments the secretion, and consequently favours the decomposition, and thus prevents in some measure the immediate contact of the metallic salt and secreting organ. Acetate of lead cannot, even for a moment, remain undecomposed in contact with the blood, or with any secretion, and cannot consequently exist as such in the circulation. When it is introduced into the stomach, decomposition, therefore, is an immediate result, and we have then no longer to do with the acetate, but with the newly formed compounds. Microscopical investigation is sufficient to show the decomposition of the serum of the blood by acetate of lead, but it is still problematical whether the globules suffer any change. A very small quantity of a metallic solution injected into a vein is sufficient to cause death, owing pro-

bably, judging from the appearances presented by the lungs, to the obstruction of their capillaries by the coagulation of the albumen of the serum.

II. In the experiments on animals, the solution of the acetate was introduced into the stomach by means of an elastic catheter. In the first class of experiments such quantities only of the salt were used as were sufficient to produce death without direct corrosion of the mucous membrane. To this end, in seven experiments upon rabbits of average size, half a gramme, or 8.21 grains, of the salt, dissolved in five parts of water, were injected into the stomach. From ten to twelve doses, (5 to 6 grammes, or 1 drachm 22 grains to 1 drachm 38.5 grains,) sufficed to produce death under remarkably similar symptoms and morbid appearances. The first doses produced little effect, the animals drank more than usual, took less food, and the fæces and urine were less in quantity. After the sixth or seventh dose there was grinding of the teeth; the animal lay frequently on the abdomen, but without the belly being painful on pressure. It now grew daily weaker, lay almost constantly on its belly, the inspiration was slow, and death followed in a paroxysm of opisthotonus. On opening the body, the stomach generally contained a quantity of an acid yellowish fluid, with a small quantity of white insoluble flakes. Lead was detected both in the fluid and flakes. The epithelium and mucus formed a thick, viscid, translucent homogeneous mass; the mucous coat itself was in general slightly attacked and marked with a large number of small white spots; but in one case the mucous coat of the stomach was unaltered, although the symptoms during life had been the same as in the other cases; thus proving that death was owing to the action of the newly formed compounds, and not to chemical corrosion. The small intestines, except in one case, were in their natural state; the large intestines were healthy and contained a small quantity of rather firm fæces, in which analysis shewed the presence of lead in such quantity as to prove that most of the lead had combined with the mucus to form an inert compound, which passes off with the excrements. The blood was evidently altered; it was of a peculiar cherry-red colour; the serum was proportionally small in quantity, and viscid; the coagulum was very firm. No lead could be detected in the blood by the above process of analysis.

The appearance in the lungs varied. In general they contained neither blood nor air, did not crepitate, but were often marked with dark patches, owing to small quantities of coagulated blood. In other cases they were very dark, contained black coagulated blood, but were not inflamed. The kidneys were healthy, the bladder generally filled with limpid urine. The other organs were natural. To study the effects of larger doses, ten grammes, or two drachms forty-four grains, of sugar of lead, dissolved in two parts water, were injected into the stomach. The respiration and circulation immediately became hurried, and continued so for some time. There was great thirst, and in general augmented excretions of fæces and urine. The urine was in general natural; often white, containing white insoluble flakes; sometimes bloody, but only during the first hours after the administration of the poison. In about an hour the respiration ceased to be frequent, and became rather slow and difficult; the animal was very weak, lay on the belly, and was often convulsed. It gradually became weaker, and died in a paroxysm of episthotonus, in a period varying from three to twelve hours.

In general the body was opened immediately after death. The mucous coat of the stomach was grey or white, dry and friable, and very like coagulated albumen or casein. It was easily separated, along with the layer of subjacent cellular tissue, from the muscular coat. The vessels of the cellular tissue were gorged with coagulated blood; the muscular coat was attacked in some places, but the peritoneum appeared healthy when the examination was made immediately after death. The whole tract of the small intestines shewed morbid appearances; the mucous coat was white, dry, and thickened: these alterations affected more particularly the villi, the intervening membrane being in general only spotted or very partially affected. The small intestines, besides, were often covered with red patches, which are not, however, to be ascribed to inflammation, but to the chemical action of the metallic salt. In such cases, from half an ounce to four ounces of

bloody serum were found in the peritoneal cavity. The mucous coat of the large intestines was in no case affected, as the remainder of the undecomposed salt came in contact in the cæcum with a large quantity of fluid, by which it was perfectly decomposed, without affecting the subjacent tissues.

The changes in the blood were similar to those found in the cases in which small doses were administered, but the serum was in greater or less quantity according as the animal had drunk much or little. On opening the chest, the diaphragm was found high in that cavity, the lungs contracted and dark, with hardly any cre-pitation and almost entirely empty of air and fluid, containing only a small quantity of coagulated blood. When the urine was natural there was no change in the appearance of the kidneys; when it was troubled and milky their surface was in some places darker than natural, the cortical substance was in general very dark, and some of the cones of the tubular substance were also darker than natural as far as the papillæ. In cases where bloody urine was secreted the same changes were found, but in a more intense degree. The bloody urine is supposed to be dependent on decomposition of the blood.

When small doses of the salt of lead are exhibited death follows from the alteration of the blood; but the corrosion of the mucous membrane of the intestines is proved to have a powerful influence in accelerating the fatal termination. Five grammes, or one drachm twenty-two grains, of sugar of lead dissolved in two parts water, and injected into the stomach, were sufficient to cause death in some cases, but in others the effect was merely temporary. The symptoms were nearly the same as those already described, but bloody urine was a constant effect of these doses. When death was the consequence, the animal died in about forty-eight hours, and dissection showed extensive lesion of the mucous coat of the intestines, with alterations of the blood, lungs, and kidneys, similar to those found in the other cases. When the dose was not sufficient to cause death, the animal recovered its appetite, and passed limpid urine by the third day. It was then poisoned with prussic acid, and the lesions of the intestinal mucous coat were found on dissection to be unimportant. The rapidity with which death ensues is dependent, therefore, in a great measure upon the state of the mucous membrane, for the specific action of lead had taken place alike in both cases, as was sufficiently evident from the appearance of the urine.

It appears from the above experiments that acetate of lead produces corrosion of the mucous membrane only when the gastric fluids are not sufficient for its decomposition, and it is rendered probable that the peculiar poisonous action of lead results from the soluble compounds which it forms with the acids of the gastric juice. If this conjecture be correct, it is to be expected that the solution in acetic acid of the precipitate caused by albumen in a solution of the acetate will possess poisonous properties greater than those of the pure acetate. Experiments were made first with large doses: 2 grammes, or 32.8 grains, of the acetate were decomposed by albumen, and the precipitate, dissolved in acetic acid, was introduced into the stomach. Two such doses were sufficient to cause death, with symptoms in a great measure similar to those observed in the former cases. The mucous coat of the stomach was neither white nor corroded, but apparently quite healthy, except that in the large curvature there were some dark brown superficial spots, and that the mucous coat appeared thinner than natural. The villi were of a dark brown colour, but not inflamed. The alterations in the lungs, blood, and kidneys, were nearly the same as those found in the other experiments.

The experiment was then tried with small doses: half a gramme, or 8.21 grains, of the acetate were decomposed by albumen, and the resulting compound dissolved in acetic acid. This quantity was administered every alternate day. Seven doses produced death, and the animal died on the sixteenth day, having taken 57.37 grains of the salt of lead, only one-half of the quantity which is necessary to produce death when it is given in small doses as the pure acetate. The symptoms resembled very much those produced by small doses of the pure acetate. There was no corrosion found in the stomach; the mucous coat was thin, but firm, and had the appearance as if some of its component parts had been dissolved without change of

form; the same dark coloured spots were observable in the large curvature as in the preceding case. The villi were somewhat reddened, and the colour depended upon injection of the veins. The lungs, kidneys, and blood presented the appearances already described.

It thus appears that the poisonous action of lead is produced more quickly and powerfully by this soluble compound than by the exhibition of the pure acetate, because in the latter case a large portion of the salt is rendered inert, by forming insoluble compounds with the contents of the stomach.

The above experiments were all performed upon rabbits, but the acetate was found to produce the same symptoms and lesions in dogs. Large doses of twelve grammes, or three drachms, seventeen grains, dissolved in three parts water, were introduced into the stomach of a dog, and the dose was repeated at various intervals, as its exhibition generally produced copious vomiting, by which most of the poison was ejected. On the fifth day the animal received the fourth dose, and appeared very weak and feeble on the sixth and seventh day. On the eighth day it received six grammes of the salt, after which it continued to become more and more feeble, and died on the eleventh day. The contents of the stomach were of a yellowish brown colour and were mixed with blood; the mucous coat was white and much corroded, and covered with cherry-red patches. The contents of the small intestines and cæcum resembled those of the stomach, but the mucous coat was nowhere corroded; it was partially reddened, owing to a gorged condition of the blood-vessels of the innermost layer of the mucous membrane. The lungs and blood were altered as in the previous experiments. The kidneys were healthy.

It is seldom that symptoms of poisoning follow from the external application of a metallic salt, because in external parts there exists no free acid to dissolve the compounds of the salt with the organic principles. Two grammes, or 32.8 grains, of acetate of lead, in substance, were introduced into the subcutaneous cellular tissue of a rabbit. Slight symptoms, resulting from mechanical irritation, followed. On the following day, two more grammes were introduced beneath another part of the skin, and two days later two more grammes in another part. No symptoms of poisoning followed, the animal continued to take its food, and the excretions were natural. The symptoms of mechanical irritation, however, were now considerable, and the animal died in consequence on the evening of the fifth day. The cellular tissue, muscles, tendons, sheaths, membranes, &c. were found changed into a dry white friable mass, extending to a depth of from one to three lines. The whole of the abdominal viscera were healthy. The blood was natural, and the lungs, although firmer than usual, were not so to such a degree as to warrant the conclusion of an affection of the system by lead.

A solution of half a gramme (8.21 grains,) of the acetate was decomposed by albumen, and the precipitate, dissolved in a slight excess of acetic acid, was injected into the cellular tissue beneath the skin of another rabbit. The animal very soon became dull, the respiration hurried, and belly contracted. The thirst was great, the animal lay upon its belly, and died in a paroxysm of opisthotonus in about twenty hours. On dissection most of the solution was found in the cellular tissue. The neighbouring parts were altered and discoloured, were softer, drier, and more friable than natural. The intestinal canal was injected, but otherwise healthy. The blood had undergone the same changes as in the other cases of poisoning by lead, the kidneys were injected, the lungs darker than usual, and contained a very small quantity of blood and air. No other material change was observable. In another case one gramme of the acetate applied in a similar manner produced death in three hours.

III. Dr. Mitscherlich was unable by the most minute analysis to prove satisfactorily the presence of lead in the blood or urine of animals poisoned by lead, and he therefore infers that if it passes at all into the blood or urine it must be in very small quantities only.

In his closing remarks he gives a summary of his results, and points out the practical utility of his experiments, and concludes by promising a series of articles upon the action of other metallic salts upon the system, to be followed by others

upon the action of the alkalies, earths, alcaloids, and other organic principles.—*Müller's Archiv. für Anatomie und Physiologie. Jahrgang, 1836. Heft iv. and v.*

On the Origin of the Fifth and Seventh Pair of Nerves. By A. RETZIUS.

THE olivary bodies seem to stand in close relation with the facial nerves, 1stly, because these nerves arise from the medulla oblongata immediately anterior to the olivary bodies; in the brain of the fœtus, which consists almost entirely of a reddish gray mass, containing some narrow white bands in the situation of the principal cords, there is one such band which passes from the seventh pair to the upper edge of the olivary body, or the funicular siliquæ of Burdach; 2dly, because the roots of the seventh pair can be traced in adults likewise to the external fibrous bundles, and upper edge of the olivary bodies; 3dly, because the development of the seventh pair of nerves seems to be dependent upon that of the olivary bodies—as both are found most perfect in man, and are only imperfectly developed in the lower animals.

It is proved by comparative, experimental, and pathological anatomy, that the functions of the seventh pair are to produce the expressive (*mimische*) motions of the countenance; and as these, together with the motions which are produced in speaking, (both being peculiar attributes of the human race,) are excited, by means of the facial and hypoglossal nerves, from the olivary bodies, we are warranted in assuming these bodies as the central organ of the motions of expression (*mimische Bewegungen*.) and speech.

From late researches it appears that the motor branch of the fifth pair of nerves really arises from the pyramidal bodies, from the fibrous bundles, namely, which lie in the pons varolii; and that the branch for sensation arises from the interior of the corpora restiformia. As the pyramids belong to the motor, and the restiform bodies to the sensory apparatus, it follows that this double origin of the nerve corresponds with the double origin of the spinal nerves, and harmonizes with the fundamental idea of Bell's system.—*Müller's Archiv. für Anatomie und Physiologie. Jahrgang, 1836. Heft v.*

PATHOLOGY, PRACTICAL MEDICINE, AND THERAPEUTICS.

On the Indications for the Use of Chlorine and Muriatic Acid Vapours in Diseases of the Air-Passages and Lungs. By Professor ALBERS, of Bonn.

[In the years 1829, 1830, and 1831, Professor Albers instituted a series of clinical experiments in the Medical Hospital at Bonn, on the effects of chlorine vapours in phthisis, chronic bronchitis, and chronic pneumonia; these experiments were repeated in his private practice, during the years 1832 and 1833, and derive much value from the care taken to establish the diagnosis in every case with sufficient accuracy, a point to which very little attention had been paid by preceding writers on the subject.]

The chlorine vapour was applied in the manner recommended by Murray; or, instead of exposing the patient to vapour strongly impregnated with chlorine, for the space of a few minutes at different times in the day, he was kept the whole day in a chamber filled with very weak chlorine vapour. The vapour was produced by boiling chloride of lime and then heating it in a large dish, or by sprinkling it with muriatic acid; sometimes it was generated by pouring sulphuric acid on culinary salt. The following cases exhibit the results of Dr. Albers's experience.

CASE I. A woman, aged forty-seven, of consumptive habit, and born of parents who died of consumption, was admitted into the hospital in January, 1830. Her symptoms were, cough of twelve months standing, progressive emaciation, hectic, great dyspnoea, copious expectoration of tubercular matter streaked with blood, sharp rapid pulse, anorexia, and constipation. She had pectoriloquy and mucous

rhonchus under both clavicles; absence of the respiratory murmur at some spots, and bronchial respiration at others; respiration normal in the lower part of the right side only. There could be no doubt of the existence of phthisis in this case.

As soon as the hæmoptysis had ceased under the use of acetate of lead and nitre, the patient was exposed to the chlorine vapour for the space of fifteen minutes four times a day. On the third day, she complained of violent constriction of the chest, copious expectoration, and stitches in the side, and was obliged to omit the use of the vapour. Two days afterwards the experiment was again repeated, but had to be discontinued a second time from the same cause. The only effect observed, was a diminution in the frequency and hardness of the pulse. During the use of this remedy she had observed a mild nutritious diet. She died five months afterwards.

CASE II. A man, aged twenty-six, was admitted into the Medical Clinic in February 1831. His symptoms were, cough of two years standing, (said to have arisen after exposure to cold,) latterly increased, and accompanied by expectoration; fixed pain in a circumscribed spot between the fifth and sixth ribs on the right side, about three fingers' breadth from the sternum; occasional attacks of dyspnoea, ending in copious expectoration of clear viscid mucus mixed with firm globular masses streaked with blood; habit of body normal; slight emaciation. Over the spot already noticed, sonorous and sibilous rhonchi were alternately heard; on the left side, the respiratory murmur was nearly natural; on the right side, particularly at the upper part of the chest, it was feeble, and bronchophony was heard at the spot where the sibilous rhonchus was present. The diagnosis here recorded was "ulceration of the bronchial tubes, with a healthy state of the parenchyma of the lungs." Under the use of cupping, blisters, and expectorants, the pain disappeared, and the respiratory murmur in the right side became clear, but the cough and expectoration continued, with a slight sibilous rhonchus. The patient remained for a few minutes, four times a day, in a chamber abundantly filled with chlorine vapour. On the first day, he had violent constriction of the chest at each inspiration; on the second he was somewhat easier, but on the sixth his breathing was so much oppressed that he thought he should be suffocated, and the expectoration stopped. He was afterwards cured by other means.

CASE III. I. J., aged twenty-six, born of healthy parents, and without any sign of the scrofulous diathesis, except a few swollen glands in the neck, placed himself under the care of Dr. Albers in 1831. For the last six months he had laboured under cough, at first dry, but afterwards attended with expectoration of greyish, fetid, tubercular matter; he had pectoriloquy under the left clavicle, and the usual signs of tubercles in the second stage, but no pain in any part of the chest. After having used the ordinary remedies for a fortnight, he was kept the whole day in a chamber filled with weak chlorine vapour. He suffered considerably at first from constriction of the chest, although there was no diminution of the cough or expectoration, but subsequently bore the vapour extremely well, and remained in it for twenty-three days without any remarkable inconvenience. During this period there was no diminution of his symptoms; the expectoration became more copious, and lost its fetid odour, and pectoriloquy became developed under the right clavicle also. Shortly afterwards, he was attacked with colliquative diarrhoea and died. Dissection exhibited tubercles in all stages, and ulceration of the intestines.

CASE IV. A man, aged forty-six, who had been two years under treatment in the medical clinic at Bonn, and who exhibited all the signs and symptoms of tubercular disease of the lungs in the third stage, was exposed to the chlorine vapour in the manner already described. At first, the inspiration of the vapour was distressing, but afterwards agreed very well with the patient, and he continued to use it for the space of five weeks without any intermission. The expectoration became more fluid and less fetid, the hectic paroxysms less regular, the pulse less excited, and the nights were passed more easily; the local symptoms, however, continued unchanged, and the patient sank two months afterwards under the usual colliquative diarrhoea.

CASE V. A man, aged thirty-three, who had laboured for six months under

cough with copious expectoration of thick yellowish matter, placed himself under the care of Dr. Albers. His symptoms were, dyspnoea, increased by motion; emaciation, occasional pains in the chest, and cough, which was so violent at night and in the morning that the patient was afraid of being suffocated. The stethoscopic signs were, bronchophony over the whole of the right side, bronchial respiration, and mucous rhonchus at various spots in the same side, and clear sound on percussion. His appetite and digestion were good, and he had no hereditary tendency to phthisis.—*Diagnosis*: Dilatation of the bronchial tubes.—The patient was exposed to a very weak vapour of chlorine, which he bore tolerably well for the first day; but on the second, he suffered great distress of respiration, and on the third the expectoration stopped, and his symptoms became so violent that he was obliged to give up the remedy. After eight days, during which the patient was brought back to his former state, a second experiment was made, but was followed by the same result; the sense of constriction and suffocation was so great, that the man could not endure it, and the use of the vapour was wholly abandoned. The patient died some time afterwards, and on opening the body, the lungs were found healthy, and the bronchial tubes generally dilated.

CASE VI. A man, aged twenty-two, and previously healthy, was attacked in the winter of 1831, after hard labour, with violent pain in the right breast, increased during motion and inspiration, dyspnoea, and short cough, accompanied by scanty expectoration, at first of a dark brown, but afterwards of a bright red colour. He was bled three times, had forty leeches applied to the right side of the chest, and used several mixtures with more or less relief. After some days, the cough increased, and he began to expectorate a fetid matter of a yellowish grey colour; his fever diminished, but the dyspnoea and sense of constriction in the chest remained, with occasional stitches in the side. Under these circumstances he was admitted into the medical hospital at Bonn, and presented the following train of symptoms:—Chest well formed, right subclavicular region somewhat less prominent than the left, and tender on pressure; respiratory murmur distinct in the whole of the left lung anteriorly and posteriorly; on the right side, it was absent in the subclavicular region; over the remainder of the right side it could be heard distinctly. When the respiratory murmur was absent, mucous and cavernous rhonchi were heard, and pectoriloquy, circumscribed to a small spot. Decubitus on the back or the left side brought on violent paroxysms of coughing; the expectoration was greenish yellow, very fetid, and occasionally streaked with blood; the patient had regular attacks of hectic every afternoon, his pulse was always hard and frequent, his strength greatly diminished, and he appeared to be considerably emaciated.—*Diagnosis*: an ulcerating vomica in the upper lobe of the right lung. Under the use of a mild diet, the constriction of the chest and bloody expectoration disappeared, and it was then determined to expose the patient for a few minutes each day to the vapour of chlorine. The first two turns, the patient was unable to remain in it longer than a minute or two, in consequence of the cough and sense of suffocation produced by it, but by degrees he began to bear it better, and at the end of three weeks was able to remain a quarter of an hour in the room six times a day. During this period, the fever diminished, the cough became less violent, the patient's appetite returned, and the night sweats disappeared; the expectoration however remained the same, except that it contained less mucus. The patient became now anxious to return home, and left the hospital. In 1835, Professor Albers heard from a physician in the patient's neighbourhood, that he had progressively improved after he left the Hospital, and was able to serve in the Landwehr without any further inconvenience.

CASE VII. A girl, aged twenty, and born of healthy parents, was attacked, in November 1830, with febrile symptoms, accompanied by dyspnoea, flying pains in the whole of the left side of the chest, hard short cough, and bloody expectoration. Under the use of local and general depletion, the pains diminished in violence, but the cough became increased, and she continued to have copious expectoration of yellowish green matter, mixed with air bubbles, and streaked with blood. When seen by Dr. Albers, she seemed considerably emaciated, and exhibited indications

the scrofulous diathesis; but she had no fever, and her sleep and digestion were normal. Her pulse was hard, her cough violent night and morning, at other times troublesome; expectoration copious, fetid, and of a greenish yellow colour, sinking in water; decubitus on the right side always produced severe paroxysms of cough. The left mammary and subclavicular regions were tender on pressure; this spot, a distinct bubbling sound was heard, and bronchophony was slightly audible in the morning, but distinctly in the evening after copious expectoration. The respiratory murmur could scarcely be heard over the whole of the upper part of the right lung; in the left lung, the respiration was puerile.—*Diagnosis:* ulcerating vomica, with inflammation of the surrounding pulmonary tissue. As the patient exhibited a great tendency to hæmoptysis, she was bled, took rest, and used an antiphlogistic diet, until the expectoration no longer shewed any streaks of blood. She was then exposed to the chlorine vapour, which, in the beginning, she could only bear for half a minute at a time, but subsequently was able to breathe it for an hour, three times a day, without inconvenience. Under this treatment the expectoration became diminished and lost its fetid odour; the cough improved, and the mucous rhonchus disappeared, but the pectoriloquy remained. After using the chlorine vapour for six weeks, the quantity of expectorated matter was scarcely one sixteenth of the original amount, she had hardly any cough, and the expectoration was quite free. She then went to the country and used a milk diet, and when examined again by Dr. Albers, in August, 1831, she was free from cough and expectoration, and capable of pursuing her ordinary employments. At the spot where pectoriloquy had formerly existed, there was still an indistinct bronchophony, and in the surrounding parts the respiratory murmur was very feeble. In other respects, the lung was quite natural. The following are the conclusions deduced by Professor Albers from the results of his experience in numerous cases:

1. Chlorine acts as a stimulant, but when the remedy gets into the blood, its effects are antiphlogistic. Its effects as a local stimulant are observable in every case of the foregoing cases. It produces a tickling sensation in the eyes, nostrils, throat, and sense of roughness and constriction in the chest. If the throat of an individual who has been exposed for a long time to the vapour of chlorine be examined, it will generally be found of a deeper red than natural. These and other facts are sufficient to prove that chlorine vapour operates as a local stimulant. It is on this account more remarkable that chlorine when it gets into the blood, exercises an influence of a directly opposite nature. It diminishes the frequency of the pulse, calms excitement, and produces effects which may be termed antiphlogistic. This difference of effect, however, before and after the remedy gets into the blood, is not peculiar to chlorine; it is common to many remedies of an antiphlogistic character, and is observed in nitre, tartar emetic, and many of the mineral salts. When there is no hæmoptysis or violent local irritation present, chlorine inhalations may be used in diseases of the lungs and air passages; its stimulant effect gradually diminishes, and after some time the mucous surfaces of the lung become less sensible to its exciting influence.

2. In tubercles of the lungs, in chronic catarrh, in chronic inflammation and ulceration of the bronchial mucous membrane, and in dilatation of the bronchi, chlorine vapour is of no service, and in most cases will not be borne, in consequence of the irritation it produces. On the other hand, it has a very salutary operation in pure ulceration of the lungs or vomica. This state, however, is not to be confounded with suppurating pneumonia, to which the use of chlorine vapour is not so applicable. How far patients labouring under disease of the lungs may be adapted to using this remedy cannot be determined; much will depend on general irritability and individual disposition, and the chlorine vapour should be always tried experimentally at first.

3. From the foregoing observations it appears, that chlorine vapour produces salutary effects in chronic ulcers of the lungs; this agrees with the results obtained in surgical practice from treating old ulcers with the solutions of chloride of soda and chloride of lime.

[The experience of Professor Albers coincides in some points with that of Dr. William Stokes, of Dublin. Dr. Stokes has always found chlorine inhalations pre-judicial in phthisis, producing in all cases increase of bronchial irritation, dyspnoea and arrest of the pulmonary secretion. In his trials of this remedy in gangrene of the lung, of which an interesting detail will be found in the fifth volume of the Dublin Hospital Reports, he has found it decidedly beneficial, correcting the *stertor* of breath and expectoration, and therefore calculated to obviate, not only the local but also the constitutional symptoms connected with such a state of the lung.]

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PROFESSORS SEBASTIAN and ALBERS on Tubercles.

A VALUABLE article on Tubercles has lately been published by Professor Sebastian in the Dutch periodical, *Tijdschrift voor natuurlijke Geschiednis*, 2d Deel 3d Stuck. We have not seen the original paper, but we subjoin a short notice of the Professor's opinions, as we find them stated by Dr. Albers, of Bonn, in an article contained in the Hannoverian Annals. Sebastian is of opinion that tubercles are deposited in the air-cells of the lungs, and not in the intercellular tissue chiefly on the ground that the latter does not afford space sufficient for such deposition, and, secondly, because tubercles are never found in the interlobular cellular tissue. The question, whether hydatids are ever the cause of tubercles is negative by Sebastian, as far as regards the lungs; but he is inclined to think that tubercle in the liver may owe their development to such a cause. Dr. Albers, however, has convinced himself that hydatids are never the cause of tubercles, either in the liver or in any other organ; but he admits that a deposition of tubercular matter may take place in the hydatid itself, where a predisposition to the tubercular diathesis exists. Both Sebastian and Albers agree that tubercles are never owing to degeneration of structure, in glandular or any other tissue; and the latter has frequently satisfied himself by microscopical investigations that tubercular infiltration arises from the deposition of an infinite number of small tubercles between the healthy fibres of an organ, and never to degeneration of structure.

Sebastian adheres to the opinion that tubercles are fluid when first deposited chiefly because he believes that the vessels are incapable of secreting solid matter. Miliary tubercles he regards as genuine tubercles, but Albers is disposed to consider this opinion as still open to objection. Sebastian considers the enlargement of tubercles as in most cases owing to aggregation, but he does not deny that in some cases it may be owing to a greater original secretion of tubercular matter. It is obvious that, during the period of softening, tubercles are often enlarged by aggregation; but the variable size of the crude tubercle must be owing either to greater or less tubercular deposition, or to the nature of the tissue in which the tubercle is deposited. The latter cause has been advocated chiefly by Carswell and Schröder van der Kolk; but, as Sebastian maintains that the crude tubercle displays the same original conformation in whatever organ it may be deposited, he is inclined to ascribe to it a peculiar power of self-formation. This, he says, is most particularly the case with miliary tubercles, which, in every situation, display the same peculiar round shape. The variable consistency of tubercles is supposed to be owing to the greater or less absorption of the fluid of the tubercular matter and not to depend, as Carswell thinks, upon the organ in which it is deposited. The latter cause may, however, be of some effect; for, supposing that tubercular matter, when secreted, is always of a like consistency, it must act as an irritant more in one organ than in another.

Sebastian subscribes to the now generally received opinion that tubercles are not supplied with blood-vessels, and he supports this view by beautifully injected preparations. His opinions regarding the softening of tubercles, and the enlargement of the tubercular cavity, do not appear to contain any thing novel. Some doubts still exist regarding the manner in which the chalky concretions, which are observed to follow the resolution of tubercles in their first stage, are formed. Sebastian thinks that the tubercle may be directly changed into this chalky matter.

a supposition which Albers considers as highly improbable; and maintains, on the contrary, that the tubercle must first be absorbed, and the chalky matter afterwards deposited. Sebastian agrees with Andral and Laennec in considering the cicatrization of tubercular cavities as possible, and even not unfrequent: with this opinion Albers by no means agrees, and chiefly on the ground that tubercles are rarely found, in such cases, either in the lungs or in other organs; when such cicatrices exist, he ascribes them to the obliteration of pneumonic abscesses, in which supposition his own experience, he says, amply supports him.

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On the Indications for the Use of Moxa, with Cases. By DR. SADLER.
(From the Archives of the Corresponding Medical Society of St. Petersburg.)

THE MOXAS employed by Dr. Sadler are about half an inch in diameter, and three quarters of an inch in height. They are composed of a nucleus formed of the pith of the sun-flower (*Helianthus annuus*), wrapped in layers of cotton of various thickness, and surrounded with an external envelope of thin muslin; both the latter are previously steeped in a solution of nitre. They are held, while burning, by means of two long hair pins, the legs of which are slightly bent, in order to accommodate them to the shape of the moxa; and when the latter is burned down to the place where it is held by the first hair pin, it can be seized with the other, and retained in its proper situation. The moxa must be allowed to act for a considerable time: by observing this rule, the pain after the operation is always considerably less than where the application has been continued only for a brief period. The burnt part requires no treatment for the first few days; it is insensible and dry. Larrey states that moistening the part with spirit of ammonia prevents suppuration: this however is not the fact; suppuration always takes place, and is often very copious. Dr. Sadler never uses more than one moxa at a time, except in cases of violent sciatica, in which he sometimes applies one over the glutæi, and another over the most painful spot of the thigh or calf. Except in one instance, which appears somewhat doubtful, he has never seen any secondary bad effects from the use of the moxa. When used in febrile affections, it generally produces an increase of the fever on the second day. In painful affections, the relief afforded is often instantaneous, and lasts many days. Generally speaking, however, it ceases about the fifth day, and it is on this day that he usually repeats the application, and so on every fifth day until the requisite number have been used. He has never used more than eight, and in most cases not more than three. In one case he used twenty-four, but then they were employed at considerable intervals during the course of two years, and the moxas were only about one third of the usual size.

The general effects of moxa, on which the indications for its use depend, are divided by Dr. Sadler into, 1, anti-erethistic; 2, purely dynamic; 3, excitant; 4, revulsive; 5, reparative. To illustrate these, he gives the following cases, to which are appended a few more by Dr. Busch and Dr. Wrangell.

I. Anti-erethistic. 1st Case. Miss B., was attacked with violent symptoms, which left her medical attendant in doubt whether they were the precursory symptoms of measles, or connected with a spasmodic affection of the chest to which she was subject. A small quantity of blood was abstracted on the third and fourth day, and on the fifth, a moderately diffused eruption of measles appeared, accompanied by violent gastro-enteric irritation. The vomiting and purging continued in spite of every means, and on the sixth day, the pulse began to sink, and the extremities became cold. A moderately sized moxa, applied over the epigastrium, speedily arrested the vomiting, and removed the threatened danger. The child convalesced slowly, but recovered completely.

2d Case. E. von der L., aged twenty-eight, of delicate constitution, and who had been frequently ill during the winter of 1833-4, consulted Dr. Sadler on the 18th of July, 1834. He presented the usual symptoms of dyspepsia in an aggravated form, namely, weakness, irritability, emaciation, loss of sleep, foul tongue,

salivation, moræna, diarrhœa, heartburn, pain in the chest, and dry cough. He was ordered to use a milk diet, and prescribed the nitrate of potash with laurel water in mucilaginous decoctions; but as the symptoms continued progressive, and he became worse, Dr. Sadler applied a moxa over the epigastrium, on the 17th of August. This produced considerable relief, and was repeated on the 19th. On the 19th, the patient felt greatly improved, and his appetite was returning. On the 29th, he was able to dispense with medicine altogether. He recovered rapidly, and is now quite well.

II. *Purely dynamic: 1st Case.* Herr von St., a strong healthy man, aged fifty, had laboured for several months under a violent pain in the thigh-bone, supposed to have arisen from exposure to cold. No trace of disease could be discovered on examination, and during the day the patient felt quite well, with the exception of a slight degree of languor; but at night when in bed, he was attacked at an uncertain hour with the most intolerable pain, which lasted until morning. He had tried various remedies for several months, but without effect. Six moxas, two over the glutei, and four over the most painful part of the thigh, completely relieved him. In the winter of 1832, he had a second attack, produced also by exposure to cold, and was cured again by the application of three moxas.

2d Case. A riding-master, aged forty, who had fractured his leg and thigh, and dislocated the hip-joint by a fall from his horse, consulted Dr. Sadler in December, 1835. He complained of violent pain in the hip, thigh, and calf, which frequently lasted from two to four weeks, totally preventing him from sleeping, and then became for some time much milder. His health was somewhat impaired from loss of sleep, but in other respects his constitution was good. He was completely cured by four moxas, two on the hip, one on the middle of the thigh, and one on the calf. He bore the application of the first two on the hip without much suffering, but the two following ones caused excessive pain.

IV. *Revulsive: 1st Case.* A shoemaker, aged forty, of emaciated cachectic appearance, consulted Dr. Sadler on the 13th of February, 1833, affected with copious expectoration of fetid purulent matter, great emaciation, and colliquative sweats. In addition to the internal use of acetate of lead and opium, a moxa was applied on the 16th over the most painful part of the left side of the chest. A second was applied on the 20th, but he refused to submit to a third, which was to be applied five days afterwards. His improvement was slow, but evident; the expectoration became diminished and lost its fetid smell. Iceland moss, milk diet, and a residence in the country completed his cure.

2d Case. A married woman, aged twenty-two, of delicate make but sound constitution, caught cold in September 1835, while menstruating. The catamenia were arrested, and she was attacked with violent inflammatory fever, which yielded after some time to general and local depletion, but the patient remained weak and emaciated, and complained of constant pain in the lower part of the abdomen. On examination, a large fluctuating tumour was discovered in the situation of the right ovary. A large moxa was applied over the central part of the tumour, and bark with a nutritious diet prescribed. Five days afterwards, a second was applied over the fundus uteri, and the use of tonics and aperients was continued. Under this treatment, the swelling diminished greatly, the patient began to improve in health and strength, and left the hospital on the fortieth day with the moxas still suppurating. The catamenia appeared again on the 20th of December, and soon afterwards the patient was able to resume her occupation as a washerwoman. The affected ovary never returned to the normal size, but it ceased to give any inconvenience whatever.

V. *Reparative.* Mademoiselle J., aged twenty-two, of full habit, and subject to some irregularity of the catamenia, had laboured for two years under an affection of the stomach, accompanied by constant burning pain in the epigastrium, particularly after taking food, vomiting, salivation, and costiveness. During this period she had used various remedies without success, and consulted Dr. Sadler in 1832, who, having tried the usual means without any result, proposed the use of moxa. A moxa was applied over the region of the stomach, which produced so much relief

at the patient came herself five times to have it repeated. Her recovery was complete and permanent.

The first two of the following cases are given by Dr. Busch, the third by Dr. Wrangell.

CASE I. A man, aged fifty, of intemperate habits, who had been labouring for three weeks under mucous fever accompanied by diarrhoea, was suddenly attacked with inflammation of the right lung. He was leeches twice, had cupping-glasses applied several times, and a purulent discharge was kept up for a considerable time by means of blistering ointment. Notwithstanding these measures, the pneumonia went on to suppuration, the diarrhoea continued, and hectic fever set in, attended by great emaciation and sinking of the pulse. After the application of six moxas at intervals of six or eight days, the hectic vanished, and the expectoration ceased to give a purulent appearance. The cure was completed by the use of senega, laurel water, &c. but it was nearly half a year before the patient could leave the house. Dr. Busch observes that he has never witnessed febrile symptoms after the use of moxas, but that he has seen the suppuration continue for several months, although the part was bathed with spirit ammoniæ after the operation.

CASE II. A young man of healthy constitution, was seized with complete paralysis of the lower extremities, after an attack of the prevailing epidemic fever in the spring of 1833. He had also a sensation of heat in the region of the sacrum, and violent pain increased by slight pressure, which compelled him to lie constantly on his belly, and tortured him day and night without any remission. Leeches, cupping-glasses, sinapisms, blisters, &c. were frequently employed without effect. After the application of two moxas, the feeling of heat disappeared, the motion of the affected limbs gradually returned, and two months afterwards the patient left the hospital quite well. Suppuration continued for a long time.

CASE III. A boy, aged five years, was attacked with hæmaturia; but as he appeared otherwise well, his mother took no notice of the occurrence. Some days afterwards he began to complain of pains in the thighs while walking, and his mother brought him to Dr. Wrangell. Oily and mucilaginous remedies were at first employed, but without benefit; the same results attended the use of cold applications over the loins, uva ursi, lycopodium, &c. and the urine began to exhibit a purulent deposit. A moxa was then applied over the region of the right kidney, and after some time, another on the opposite side. Under this treatment, all the unfavorable symptoms yielded, and the child got perfectly well.

Zeitschrift für die gesammte Medicin. Band iii. Heft ii. and iii.

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Contest between Scarlatina and Small-pox. By DR. GLEHN.
 (From the Transactions of the St. Petersburg Medical Society.)

ON the 25th of November, 1834, scarlatina and small-pox being at that time epidemic, a young sea officer was seized with vomiting without any apparent cause. He felt better on the 26th, but on the 27th complained of headach, vertigo, and agnor, with quick pulse, loaded tongue, suffusion of the eyes, and alternate rigors and flushes of heat. His symptoms were increased to an extreme degree of violence on the 28th, and on the 29th a marbled eruption of scarlatina, of dark red colour, made its appearance on his face, neck, breast, and upper extremities; along with this, there were some solitary pimples observed on his forehead and face. The velum and uvula were inflamed, and he had considerable difficulty of swallowing. Next day, the scarlet eruption grew pale, and disappeared, while, on the other hand, the pimples became more numerous and distinct, and were speedily recognized as belonging to the variety of small-pox termed varioloid. The varioloid eruption afterwards extended over the whole body. From the moment the scarlatina disappeared, all the bad symptoms ceased, and the disease ran through its course with great mildness. A case of the same description is mentioned by Wülfend in his observations on the small-pox and vaccine at Weimar, in 1798. In this case also the small-pox obtained the mastery.

Zeitschrift für die Gesammte Medicin. November, 1836.

On the Treatment of Ileus with Belladonna Clysters. By DR. WAGNER, District Physician at Schlieben.

THE following cases are given in illustration of the treatment recommended by Hanius.

CASE I. On the 21st of April, Dr. Lohrenz of Schönewalde was called to visit a man, aged twenty-three, who had been complaining, since the 19th, of violent pains in the umbilical region. The pains came on periodically, and were greatly exacerbated by pressure, so that the patient screamed out when touched. He had incessant retching, his belly was hard and tense, and he had been several days without an alvine evacuation. Venesection, leeches, enemata, and various other external and internal remedies, were employed without any effect; his symptoms increased in intensity, and on the 22d, he had subsultus, syncope, and vomiting of feculent matter. His belly was tympanitic hard and painful, his bowels obstinately costive, his pulse scarcely to be felt, his anxiety intolerable, and his body covered with a clammy sweat. Under these circumstances, Dr. Lohrenz had recourse to clysters of belladonna. One half of the lavement was first injected; and unlike the other enemata, which were almost immediately rejected, this was retained, and had a marked effect in calming the violence of the patient's symptoms. His countenance became more cheerful, and his abdomen softer, but the pupils became greatly dilated. Half an hour afterwards, the second half was injected, and produced the most decided improvement. It was speedily followed by copious evacuations from the bowels, the pulse rose, the pain and vomiting ceased, and next morning the patient felt quite restored, and has not had since that time any return of his complaint.

CASE II. On the 4th of June, Dr. Wagner was called to see a labourer's wife, aged forty, of spare habit, but otherwise robust and healthy. The patient complained of a violent cutting sensation in the bowels, with obstinate costiveness and incessant vomiting. She had had repeated attacks of the same description before, but much milder, and of brief duration. On examination, he found a hernial tumour in the right groin, about the size of a walnut, and so excessively tender on pressure, that she could not bear the slightest touch. The belly was tympanitic and tender, the pulse small and rapid, the face pale, the body moderately warm. A large venesection was premised, and all the usual internal remedies (except quicksilver) tried without any effect; clysters of all kinds were employed, but proved equally ineffectual. The patient refused to submit to a second venesection or the application of leeches, and rejected altogether the proposal of an operation. On the 5th, all her symptoms were increased; her thirst was excessive, and she had fecal vomiting, with suppression of urine. In this state of things Dr. Wagner had recourse to the belladonna clysters. He infused a drachm of the root of belladonna, and an ounce of chamomile flowers (he does not state how long) in twelve ounces of water, and divided the infusion into three parts. The first part was administered by himself as soon as it was cold, and produced very remarkable effects. The nausea and vomiting instantly ceased, and half an hour afterwards, the belly was soft, without much tenderness on pressure, and the hernial tumour much less tense, though still painful. None of the secondary bad effects of belladonna were observed. On visiting the patient at noon, he found her quite easy and contented, but labouring under dilatation of the pupils. She told him that she had been threatened with a repetition of the attack about half an hour before, but that she had stopped it *by drinking a few spoonfuls of the clyster mixture*. In the evening, when seen by Dr. Wagner, she complained of a return of the abdominal pain and tension, and as there was no indication of the secondary effects of the belladonna, except some dilatation of the pupil, he administered the remainder of the infusion. The patient passed a quiet night, with the exception of some troublesome dreams, and, on the following morning, the abdominal symptoms were mild and inconsiderable, except that the hernial sac remained extremely tender on pressure, and the incarcerated portion of intestine could not be replaced. At noon, the soreness and tension of the belly increased again, and as no alvine evacuation

had as yet taken place, and there were no apparent bad consequences from the belladonna. Dr. Wagner repeated the infusion as before. The first dose produced the usual tranquillizing effect, but no further change; and as the constitutional effects of the remedy were limited to some increase in the dilatation of the pupils, with unpleasant dreams, he administered the second portion, and, towards evening, the third and last.

On the morning of the 7th, the hernial tumour had disappeared, loud borborygmi were heard in the abdomen, and large evacuations of offensive fæces took place, but the patient, after having been annoyed the whole night with frightful dreams, was suddenly seized with such furious delirium that it required several strong men to hold her. Her eye was fixed and sparkling, the pupils excessively dilated, the conjunctiva injected, the cheeks of a fiery red, the pulse small, rapid, and scarcely to be felt, *deglutition unimpeded*. She saw nothing but strange phantoms, which she sought to drive away by abuse and threats, and searched for concealed enemies under her bedding, clothes, and furniture. She believed herself perfectly well, wished to resume her domestic labours, pulled on her clothes with furious violence, and would have rushed out of the house had she not been held by force. Dr. Wagner ordered enemata of vinegar, (which were followed by copious evacuations,) and gave vinegar with strong coffee internally, of which the patient drank large quantities with much desire. Cold lotions were applied to the head, and the limbs were washed with vinegar, an operation which the patient herself performed with apparent satisfaction, washing herself with vinegar from head to foot. This state of things continued until the morning of the 8th, when the patient became rational and composed, but complained of flashes of light and various other optical phantasms, with a sense of great weight and pressure in the head, and a general feeling of soreness and exhaustion, particularly in the feet. She recollected distinctly everything she had said and done during the preceding day and night, and said that the horrible phantoms by which she was incessantly surrounded had compelled her to act and speak in the manner she had done. On the 9th, she complained of nothing but weakness, which soon disappeared, and she recovered rapidly without any farther unpleasant symptoms.

CASE III. On the 3d of July, a smith, aged fifty-nine, was attacked with enterocolyza, vomiting, tympanitic swelling of the abdomen, and constipation. Dr. Wagner was called to see the patient, and found an incarcerated hernia of the left groin, about the size of a hen's egg, and extremely sore to the touch. All external and internal remedies, repeated local and general bleeding, and frictions over the abdomen with extract. belladonnæ and ol. hyoscyami, proved wholly ineffectual. Every thing was instantly vomited up, and the clysters were immediately returned. As the patient would not submit to an operation, Dr. Wagner threw up an enema, composed of a scruple of the belladonna herb, and half an ounce of chamomile flowers, in four ounces of water, which arrested the vomiting immediately, and produced such a diminution of the pain, that the patient was able to enjoy several hours' sleep. The abdominal symptoms, however, returned every six or eight hours, and were four times allayed by the use of the same enema. On the 5th, return of the pain and tenderness; Dr. Wagner was afraid to have recourse to the belladonna, as, in addition to great dilatation of the pupils, frightful dreams, sinking and acceleration of the pulse, and dryness of the tongue, had taken place; and he prevailed on the patient, after much entreaty, to submit to the operation. This was performed successfully by Dr. Weistand, on the 6th, and in fourteen days the patient was quite well.

CASE IV. On the 5th of July, Dr. Wagner was called to a woman, aged forty-seven, who was said to have been labouring for two days under violent pains in the abdomen, obstinate constipation, and incessant vomiting. On making an examination, he found an incarcerated femoral hernia of the right side, about the size of a small walnut, and excessively tender to the touch; diffused abdominal tenderness, and tympanitic distention. Bleeding, leeching, frictions over the abdomen with belladonna and hyosciamus, and various other remedies, were employed without any effect; and the symptoms assumed a very alarming character. As the

patient refused to submit to an operation, Dr. Wagner had recourse to the belladonna clysters, which produced the usual tranquillizing effects, but the hernia remained irreducible, and the patient began to exhibit some of the symptoms of poisoning, as dilatation of the pupils, sparkling of the eyes, a fiery red colour of the cheeks, and acceleration of pulse. Blood was now drawn from the arm, small doses of calomel and laxative salts given internally, and the belladonna clysters continued, until six lavements (each composed of ʒi. of belladonna to ʒiv. of water) were used. The hernia, however, remained irreducible, and as the patient would not submit to an operation, Dr. Wagner discontinued his visits on the 8th. On the 9th, however, the greater part of the hernial tumour had disappeared, the patient had several copious stools, and in the course of two days, found herself quite well.

[The foregoing cases show that belladonna, like tobacco, is a remedy of great efficacy in subduing symptoms of ileus connected with incarcerated hernia. It has also the advantage of relieving pain, without substituting for it the horrible sickness and sinking of the vital powers, which results from the use of tobacco. Two facts, however, connected with the history of belladonna, will always tend to diminish its applicability; namely, its tendency to accumulate in the system and then explode with fearful violence, and the well known fact, that its specific powers vary in a remarkable degree according to the place in which it grows.]

Journal der Pr. Heilkunde. August, 1836.

Remarkable Case of Pica. By Dr. VON VOGEL, of Rostock.

AMONG the persons who spent the bathing season at Doberan, last summer, was a foreign lady, who had been affected for some years with an unnatural appetite for charcoal. She was thirty-two years old, and had been married ten years. Her first three labours terminated naturally; she then had a miscarriage, and during her pregnancy laboured under salivation. Shortly afterwards, she conceived again, and was a second time attacked with salivation, which continued during the first half of the period of utero-gestation. Towards the end of her pregnancy, she suffered greatly from abdominal derangement, hæmorrhoids, and spasmodic affections of the bladder, all of which disappeared after her confinement. With the exception of a hysteric habit her health was generally good, except that she was troubled with acidity of stomach, uneasiness, and nausea. She had also frequent attacks of lip-tudo, her urine was turbid and sabulous, and all her family were subject to gout and hæmorrhoids.

For the last year and a half she has never been free from the appetite for charcoal, which manifested itself for the first time in her third pregnancy, during which she had frequently used charcoal for acidity of stomach, by the advice of her physician. Its influence upon her spirits is most remarkable; whenever she is sad, uneasy, or squeamish, she flies to charcoal for relief. It always tranquillizes and cheers her, and the greater her distress is, the more ravenous is her appetite for charcoal. After eating it, the bad taste in her mouth, the sense of acidity, and heartburn, completely disappear.

When the monthly period is about to set in, the appetite for charcoal becomes very sharp, so that the latter indicates the approach of the former. During this time, the charcoal is most agreeable to her palate; she carries it constantly by her, and consumes several papers of it in the day. She gives a preference to hard-wood charcoal, and suffers no inconvenience from using it, as far as she can observe, but constipation. She has used the waters of Carlsbad, and sea-bathing at Doberan, with considerable benefit to her general health, but without any change in the appetite for charcoal.

Hufeland and Osann's Journal. lxxxiii. Band., iii. Stück.

Rare Case of Spontaneous Human Combustion. By Dr. PATRIK.

THERÈSE LEMAITRE, aged sixty years, the mother of many infants, suffered from no other infirmity than some chronic ulcers upon the legs, which rendered her lame.

exceedingly stout. She kept herself constantly intoxicated by the abuse of spirits. Returning home on the 15th December, 1836, through a street which was imperfectly lighted, she is supposed to have made a false step and fallen, and was found extended, resembling more the remains of a mummy than any other human form. This woman was accustomed to clothe herself with two long gowns, and to return home in the evening, guided by a lantern suspended from the girdle of her robe. In her habitual state of intoxication, she posed that a false step having thrown her into a pool of mud, seven or eight feet deep, the lantern was broken and forthwith set fire to the greasy garments, ablating a centre of combustion.

The body was found slightly inclining to the left: the fall of the intestines to this position indicated this position. The cranium and face were dried up by the combustion, but the right side of the face was consumed, including the osseous substance.

The right side of the chest was hardened and deeply cracked. The right arm was untouched and stretched out, as if demanding succour. The muscles upon the anterior and posterior part of the same side of the body were pale and partly wasted.

The combustion was more severe according as the body was examined from above downwards. No trace of the sex remained. The tissues of the thigh were wasted. The os femoris was bare. The leg had been in part preserved by the crust and dressing of the ulcers. On the left side of the body the ravages were more severe. The femur was covered by pale muscles, in part roasted; no trace of its integuments remained.

In attempting to lift the body, the right femur was grasped but immediately separated, and when the trunk was raised a crackling was heard as if the skeleton were broken.

La Lancette Française. December, 1836.

Tobacco in Tetanus. By Dr. CAVENUE, of Martinique.

Dr. CAVENUE, practising in a country where the occurrence of tetanus is very frequent, has had recourse to the use of enemata of infusions of tobacco in many cases with great success. He has recorded various instances of recovery after treatment; sufficient, indeed, to call renewed attention to a mode of practice although already employed in this disease, is less known and appreciated than it deserves to be. Of the successful cases recorded in this paper, two are of the tetanus: one following suddenly on the use of a cold bath during profuse perspiration; and another, subsequent to the bite of a serpent, which is almost always fatal. M. Cavenue recommends the use of tobacco generally in the treatment of poisonous serpents; and the same means may be worthy of employment in cases of hydrophobia. This is rendered more probable from one case which is recorded of a young negro, who became the subject of trismus from a wound produced by a fragment of glass. He presented hydrophobic symptoms, and recovered by an antiphlogistic treatment, to which was added, with the most evident effect, the employment of a tobacco lavement. Nothing is said as to the quantity of the vegetable which should be administered. M. Cavenau appears inclined to have used a quantity which would be enormous in the healthy state. The strength of the remedy must, probably, be always proportioned to the severity of the disease. In serious cases, from one to two drachms would probably be sent, as in the *Enema Tabaci* of the London Pharmacopœia.

Bulletin de l'Académie Royale de Médecine, No. V. 1836.

Observations on the Vaccine Pustule, made during an Epidemic of Small-pox. By M. DUCROS, Jun.

At Marseilles, during an epidemic of small-pox, several hundred persons who had been vaccinated died, and considerable doubt was expressed regarding the utility of the discovery of Jenner. From several observations which M. Ducros made, it appears that the more the number of vaccine pustules are multiplied, the greater the power of the constitution to resist small-pox. Forty girls

were admitted into the hospital at Marseilles with confluent small-pox, and the majority presented but one pustule in each arm. From this M. D. is convinced that one or two pustules are insufficient to preserve individuals from the disease. In his practice he vaccinates in several places in both arms, and often in the inferior extremities, so as to create a febrile action at the period of the eruption.

He thinks the vaccine virus should be renewed every year. For thirty years the virus had not been renewed at Marseilles, and he conceives that the ravages committed by the epidemic with which they were visited may be attributed to this circumstance. Indeed, the generality of physicians had convinced themselves of the truth of this remark, by using this year vaccine matter from England, which produced a much better vaccine pustule, with a more marked inflammatory areola.

La Lancette Française. November, 1836.

Use of Chlorine Inhalations in acute and chronic Bronchitis, and in Bronchorrhœa. By M. A. TOULMOUCHE, of Rennes.

THE greater number of the experiments, the inferences from which are here related, were made during a period of four years and a half, in a "Maison de Detention," where pulmonary catarrhs are very common. The majority of the patients have borne very well the first impression of the chlorine; and all have become capable of employing it, by gradually accustoming themselves to it. With the fewest exceptions,—such as where great irritability and oppression existed,—the chlorine was employed in every case which bore the name of pulmonary catarrh, acute or chronic, inflammatory or pituitous. Its sensible effect is to change the quality of the bronchial secretion, to diminish its quantity, and finally to put a stop to it.

The result of the use of chlorine in 228 females is recorded in this paper.

Of these 228, 141 were affected with acute, and 65 with chronic, bronchitis; 17 of which latter were double, 4 complicated with pulmonary emphysema, and 22 with phthisis. Of the 141 acute cases, 51 were cured in from five to six days; 33 in from seven to ten; 29 in two or three days, and 21 in from eleven to fifteen. The greater number were thus cured in from five to eight days; the smaller in from eleven to fifteen; a result much superior to that which is obtained by the ordinary means. Of the 65 cases of chronic bronchitis, 16 were cured in from twenty-one to ten days; 15 in from eleven to ten; 13 in from two to ten; and one only in eighty-eight days. The average of cures requires, therefore, from sixteen to thirty days; and two-thirds of the patients recovered in from five to twenty or twenty-five days. This is regarded as a period of treatment two or three times shorter than that which is commonly employed. The ordinary dose is from thirty to forty drops, commencing with ten, and gradually increasing. M. Toulmouche has employed as many as 180 drops, but he does not consider that the value of the remedy is thus increased.

Bulletin de l'Académie Royale de Médecine, No. 6. 1836.

SURGERY.

Observations on Hypertrophy of the Mammary Gland. By Dr. FINGERHUTH, of Esch.

THIS affection of the mammaræ, which depends on an enlargement of the individual acini of the gland, and an increased accumulation of fat in the cellular tissue, is characterized by a constant, uniform, and painless increase of bulk. Dr. Fingerhuth distinguishes two forms; one which runs its course rapidly, and occurs at the period of puberty as a disease of development; the other, slow in its progress, and chiefly connected with disturbance in the functions of the generative system. The following observations are limited to the illustration of the first of these species.

The swelling commences in one of the breasts, generally the right, (for both are

seldom affected simultaneously,) and is ushered in by a pricking sensation in the gland, sometimes accompanied by increased sensibility. The enlargement is uniform, and involves the whole breast. The disease always makes its appearance at the period of puberty, and is contemporary with the development of the mammae, either the patient has never menstruated, or the catamenia are scanty and soon disappear. There is, however, a feeling of increased pressure and a more rapid increase of the swelling about the period of expected menstruation, in patients who have ceased to menstruate; during the intervals, the progress of the swelling is slower, but more constant. Occasionally, the patient's voice undergoes a peculiar change; it becomes hoarse and rough: this lasts for two or more days, and then ceases for a time, appearing and disappearing without any obvious cause. In one of Dr. Fingerhuth's patients, this hoarseness occurred at the period of expected menstruation; in others, he has not noticed this alteration of the voice. When the breast has attained a more considerable size, it is superficially softer, and the hard enlarged acini cannot be felt without making deeper pressure. About this time, also, the cutaneous veins become more distended, so as to give the skin somewhat of a bluish tint; the nipple becomes flatter and broader, and the areola more extended. In this way the swelling goes on increasing with more or less rapidity, until the breast has attained a very remarkable size; in some cases it is from eighteen to twenty inches in length, and from twenty to twenty-four in circumference, and weighs from ten to twelve pounds. The perspiration and blood of the patient have a peculiar smell, and the latter contains a large quantity of free carbonic acid. As the disease proceeds, the patient becomes impeded by the weight of the organ; the rest of the body generally emaciates; the thoracic viscera begin to sympathize; the patient complains of dyspnoea and sense of weight in the chest, followed by cough, loss of strength, hectic, general exhaustion, and death. The progress of the disease, however, does not always correspond with this description, and its termination presents several varieties. Sometimes the swelling reaches a determinate height, and then remains stationary for years, or even for the patient's life, causing no other inconvenience than what is necessarily connected with its weight and bulk. Sometimes the disease terminates favorably; the swelling diminishes, and ceases to give any annoyance, but the breast never returns to the normal. Sometimes it ends in effusions of serum into sacs formed in the cellular tissue, in the interstices between the enlarged and hardened acini. Where it terminates in death, it is generally accompanied by symptoms of disease in the thoracic viscera,—as ulcerations of the bronchial mucous membrane, phthisis, and hydrothorax.

On anatomical examination, very little alteration is discoverable beyond the general increase of volume, and the enlargement of the individual acini. The cellular tissue is loose, its cells larger than natural, and containing a remarkable quantity of fat. The arteries exhibit no change, either in their structure or their caliber; but the lacteal tubes are swollen and enlarged, and the veins always remarkably dilated, and occasionally altered in their structure. The pulpy matter of the nerves seems to be diminished, and the nervous twigs appear firmer and harder than usual.

Dr. Fingerhuth looks upon this hypertrophy of the breast as a disease of development, depending on the exalted activity of the organ at the period of puberty. Among the exciting causes of the disease he reckons stimulant and heating diet, frequent manipulation, the use of fragrant washes of a stimulating nature, blows, and pressure.

With respect to the mode of treatment, he divides it into the radical and palliative. The first is accomplished by diminishing the increased activity of the organ, or by extirpating the diseased gland with the knife. The palliative treatment consists in making the patient wear a suspensory bandage, and avoid all pressure, or whatever is likely to irritate the organ; in promoting the secretions, and prescribing a light vegetable diet, gentle exercise, and cheerful recreations. The following heads of cases will serve to illustrate the nature and treatment of this affection.

CASE I. L. W., aged 23, of delicate constitution. A painless swelling of the right breast made its appearance several years before, without any known cause, and gradually increased in size. When she consulted Dr. Fingerhuth, the tumour was twenty-six inches in circumference, painless, and exhibited a somewhat bluish spot at its lower part, which had a fluctuating feel. The patient was emaciated, and complained of weight about the præcordia, loss of appetite, constriction of the chest, and dry cough. She refused to submit to an operation for the removal of the diseased breast, but allowed Dr. Fingerhuth to puncture the soft part of the tumour; from which three or four ounces of yellowish serum were discharged. Compression with a bandage was next tried, but the patient could not bear it, and refused all further medical aid. She died quite exhausted about five months afterwards. On dissection, the usual phenomena of hypertrophy were discovered. At two points the acini were of a firmer and harder consistence, and between them, in the cellular tissue, were two sacs filled with yellowish serum.

CASE II. E. B., aged 17. A painless swelling of the right breast, of twelve months' standing. It had increased in a very remarkable manner during the two last months. She complained of a sense of fulness and pressure in the breast during the menstrual period; but there was no pain, and the temperature of the part was normal. She had used mercury to salivation, burnt sponge, leeches, and spirituous fomentations, without any benefit; the breast gradually enlarged, and was now double the size of the other. The swelling was uniformly soft, not tense, and capable of bearing firm pressure. The swelling suddenly increased during the menstrual period, accompanied by a sense of heat and pressure; the latter, however, ceased when menstruation was over, and the breast resumed its ordinary volume. The areola was large and somewhat dark, the nipple natural, the cutaneous veins distended, so as to give the breast a bluish tint. In other respects the patient was quite healthy.

Dr. Fingerhuth first tried the ioduret of mercury in the form of ointment: this was applied to the affected breast for twenty-four days without any benefit, and he therefore determined to have recourse to the only plan which offered a prospect of success; viz. to bring on the natural secretion of the organ. This he attempted to effect by the application of a dry cupping-glass to the affected breast. The cupping-glass was applied regularly for a fortnight, without any effect; the swelling increased, and the patient frequently complained of a feeling of heat and tension in the breast; but, on the sixteenth day, the milk began to flow in small quantity, and, at the end of the third week, a considerable quantity was discharged twice a day, and the breast became evidently diminished in size. In addition to the use of the cupping-glass, the patient was directed to take an iodine bath every fifth day, support the breast with a suspensory bandage, live on vegetable diet, and take gentle exercise in the open air. The feeling of dragging, tension, and heat disappeared; and at the end of twelve weeks, during which the aforesaid remedies were sedulously employed, the breast was reduced almost to the natural size, and had the normal feel. The cupping-glass was now less frequently applied, and the iodine bath was used only once every ten days. The breast was then soft, nearly of the natural size, (an inch longer than the sound one,) and nothing abnormal could be felt in the interior of the gland.

CASE III. M. K., aged 16, of slender make but sound constitution, consulted Dr. Fingerhuth for a painless swelling of the right breast, of eighteen months' standing, supposed to have originated from pressure. She had tried leeches, compresses, ointments, purgatives, quackery, and homœopathy, without effect; and, when seen by Dr. Fingerhuth, the affected breast was twice as large as the sound one. She complained of fulness, tension, and flushes of heat in the breast, and stated that the tumour increased greatly in size during the menstrual period. Her general health was good; but she menstruated irregularly, laboured under constipation, and was of a very irritable nervous habit.

With the view of removing the constipation and diminishing nervous excitement, Dr. Fingerhuth ordered aperients, iodine baths, a vegetable diet, and gentle exercise. In about a fortnight, the nervous susceptibility was so much

diminished that he was able to take measures to bring on the lacteal secretion: these proved successful in the course of three weeks, and, at the end of the seventh week, the breast had diminished an inch in circumference. At the end of eleven weeks, he began to apply the cupping-glass less frequently, with the view of gradually arresting the secretion of milk; but the iodine baths and other remedial measures were continued. Under this treatment, the affected mamma was greatly reduced in size, and, though it remained somewhat larger than the left, Dr. Fingerhuth thought it advisable to suspend the further use of remedial agents, and leave the rest to nature. The patient was therefore directed to resume her usual occupations, merely taking precautions to protect the breast from pressure, or any other cause of irritation.

Zeitschrift für die gesammte Medicin. October, 1836.

On the Forms of Lepra observed in the Russian Provinces bordering on the Baltic. By Dr. BLOSFELD, of Riga.

DR. BLOSFELD premises his account of lepra, as observed in the neighbourhood of Riga, with some extremely just and pertinent observations on the mode in which cutaneous affections should be studied, in order to avoid the numerous sources of error which have led to so much perplexity and embarrassment in fixing the diagnosis of many forms of skin-disease. In detailing the following cases, which are intended to serve as illustrations of the various forms of lepra observed by him, he adopts the terms employed by the late Professor Struve, of Dorpat, in his "*Synopsis Morborum Cutaneorum*."

1. *Pes Elephantiacus*, (*Lepa localis pedum* of Struve.) In June, 1827, Dr. losfeld saw, in the hospital at Mittau, a potter's wife, aged 40, whose right lower extremity, as far as the middle of the thigh, was affected with a disease resembling elephantiasis. The diseased foot was more than double the size of the other; the e-nails resembled claws, and grew into the flesh; the skin of the extremity was somewhat like tortoise-shell, and formed a hard, fissured, warty mass, of a dark blue colour, and exhibiting scattered points of suppuration. The patient was the only person of her family, or of the village, that laboured under the disease.

2. *Lepa localis pedum*. A Russian sailor, born in the government of Wilna, and residing in Riga for the last fifteen years, consulted Dr. Blosfeld, in January, 1836, for an affection of one of the lower extremities. The whole leg was thickened and hard, possessed little insensibility, and was white and shining. On the dorsum of the foot, above the heel, and about a hand's breadth above the ankle, were patches of moss-like excrescence, about an inch in breadth, surrounded the foot. The rest of the leg, anteriorly as far as the knee, and posteriorly to a hand's breadth above the ham, was also hard and of a dirty brown colour, bounded above by a patch of psoriasis, raised on a darker base. Over the anterior part of the tibia there was an ulcer, about a hand's breadth in diameter, painless, and covered with red, hard, warty granulations. The patient was of a gross lymphatic habit, his belly was very tense and hard, and he complained of tightness about the chest, and sense of pressure in the stomach after taking food.

The *Pes Elephantiacus*, with moss-like excrescences, is most frequently observed at Riga; but Dr. Blosfeld has also seen the mossy incrustation on other parts, as, for instance, the forehead.

3. *Lepa Ulcerosa*. R. G., aged 34, a merchant, born and residing at Riga, enjoyed good health up to his twentieth year, when he contracted primary symptoms of syphilis, which yielded to appropriate treatment, without any further consequences. Seven years afterwards, being at that time three years married, he was attacked with his present complaint, and was treated with mercury and various other remedies for many years, without any relief. When seen by Dr. Blosfeld, he had lost his eyelashes and eyebrows, and a portion of the hair of his head; what remained was dry and brittle. The cornea of both eyes was of the colour of mother of pearl, and covered with scurf, and the patient had been blind for two years. The nails were thickened, scabby, and partly bent backwards, partly inwards, like

claws. The forehead, cheeks, chin, shoulders, and other parts of the body, were covered, partly with cicatrices of delicate white shining skin, and partly with detached or aggregated irregular spots and patches, (*Morphææ*), from one to three inches in circumference, without any elevation, and of a bright copper colour. These spots were partly covered with yellowish or brownish crusts and scales attached in the centre, but loose at the edges; the remaining portion of the surface was marked with bleeding fissures, or they were ulcerated, raw, and covered with a serous exudation. On the hands and feet, the spots and ulcerate patches were of an irregular undulating form, (*Ophiasis*), from two to four lines in breadth, from a quarter to half a line in depth, and from three to five inches in length. The neighbouring uninjured portions of the skin appeared rough, dry, and without much sensibility. The patient died of marasmus, six weeks after he came under the care of Dr. Blossfeld. For some time before his death, he had fever, evidently of a hectic character, but unaccompanied by night sweats. The commencement of the disease was attended with remarkable salacity; during its progress, the patient complained frequently of indigestion and vomiting, with considerable languor and distress of respiration. His wife did not take the disease.

Dr. Blossfeld observes, that he would be inclined to range the foregoing case under the *Lepra albaras ulcerosa* of Struve, had not the tubercles been entirely absent. It appears to correspond with the description of the *Lepra ulcerosa* of the Greeks given by Dr. Rothamel, or to the *Lepra Arabum anaisthetos* of Fuchs. The following case corresponds more closely with the species described by Struve.

4. *Lepra albaras ulcerosa*. A stonemason, aged 35, who had laboured for five months under fever of the quartan type, was attacked, on the cessation of the febrile symptoms, with a peculiar eruption on various parts of his body. His forehead, cheeks, and chin were covered with warty, flattened, circular tubercles, closely aggregated, and elevated on coffee-coloured spots. Most of these had passed into the suppurative stage, and at various points the pus had dried up, and was covered with transparent yellowish crusts. Similar tubercles were found isolated on the scalp, which retained but little hair; and there were others of the same description on the legs, but without suppuration or crusts. The nostrils were swollen, brown and uneven; and the anus surrounded by large, soft condylomata. The patient's voice was clear and natural. There was no reason to suspect that he had ever contracted syphilis, his wife was perfectly free from disease, and mercurials had proved of no benefit to him. He was of a phlegmatic and bilious temperament, slow, indolent, voracious, and lascivious; his pulse was soft and full, scarcely fifty in a minute. He was treated with bleeding and sulphureous waters, with much benefit: the tubercles disappeared, leaving behind only the coffee-coloured spot which had formed their bases. He subsequently got an attack of apoplexy, followed by epileptic convulsions and paralysis of the right side, but recovered under appropriate treatment, and is now quite free from disease.

5, 6. *Lepra Elephantiasis leonina incipiens*. Two young persons, a brother aged 16, and a sister 14, children of a potter, came under the care of Dr. Blossfeld in September, 1826. They had been, several years previously, treated with mercurials, low diet, and various other remedies, without any benefit. The face was red and swelled; and the cheeks, forehead, and angles of the mouth covered with close-set, copper-coloured tubercles, about the size of a split hazle-nut. The nose was thickened, red, and uneven; its point sunk in and flattened. The cavity of the mouth, the throat, gums, and root of the tongue were covered with ulcers and tubercles, about the size of a millet-seed or lentil. The voice was hoarse and rough, the respiration sibilous and laboured, the muscles stiff, the skin apparently insensible, the nails thickened and scabby. Neither of them had ever contracted syphilis; and the other members of their family, as well as the rest of the inhabitants of the village, had no trace of the disease.

The foregoing cases bear considerable resemblance to Radesyge, as described by Holst, Hunefeld, and Gedike. The following is much more like *Lepra leonina* and was recognized as such by Dr. Welz, who had seen the disease in the East.

7. The son of a Russian soldier, aged fourteen, was admitted into the military

hospital at Riga, in June, 1835, having been five years ill. His forehead, cheeks, and the parts around the mouth, were beset with tubercles of a dirty copper colour: these were about the size of a split hazle-nut, more or less flattened, and closely aggregated; and, with a broad flat nose, sunk at the point, gave to the patient the appearance of a mastiff. The hair and nails were sound, the voice slightly affected from the obstruction of the nostrils. His digestion was normal. In December he was attacked with typhus; during which the tubercles inflamed, scabbed, and fell off the face, leaving behind elevated patches of a dirty copper colour and husky appearance. A few rather isolated tubercles remained on the extremities. The rest of the skin was cold, moist, and clay-coloured. The patient's mother was said to have laboured under the same disease; his father and sisters were healthy. He died of marasmus in May, 1836.

8. *Lepra Crustosa*, (*Psoriasis universalis alba* of Struve.) Herr von H., aged 34, and residing in Curland, placed himself under Dr. Blossfeld's care in the summer of 1825. He had laboured for many years under a cutaneous affection, for which he had tried a great variety of remedies without success, and was now greatly debilitated, suffered from hypochondriasis, persistent cardialgia, constipation, and was also very salacious. With the exception of his face, palms of his hands, and soles of his feet, the whole surface of his body was covered with rough, fissured, grey crusts, so as to give him the appearance of being covered with a coat of mail. On the extremities the crusts remained unchanged, but from time to time they dropped off the trunk, leaving the bare portion of the skin moist and red: this became gradually covered with crusts, at first thin, afterwards thicker and harder. He had no pain or itching. His wife and daughter were healthy. About a year after, he died with symptoms of marasmus.

9. *Radesyge*. Louisa G., aged 27, had enjoyed good health up to her fourteenth year, when she became subject to frequent attacks of transient pain in the thigh, and irregularity of the catamenia, which appeared only once in six or eight weeks. Seven years since, she had been repeatedly exposed to cold, and, three years afterwards, she was seized with violent rending pain of the right side of the head, right ear, and right eye, accompanied by deafness and amaurosis. She had also repeatedly suffered from erysipelatous affections of the leg and face; and was attacked, in April, with fever of a tertian type, attended with great hoarseness. When seen by Dr. Blossfeld, in August, her face was swelled, red, and shining; her nose sunk in, and thickened; she was deaf on the right ear, and the right eye was amaurotic and constantly bedewed with tears. The throat and pharynx were dry and covered with red spots and ulcerated patches, the uvula was gone, the nasal bones carious, the voice hoarse and whispering, the breathing sibilous, and attended with croupy cough and paroxysms of suffocation. The pain in the head was violent, the muscles of the right side sluggish in their action, the urine turbid and exhibiting a white deposit; slow fever. Her hair and nails were sound. Although the patient never had syphilis, she had been treated for it by several physicians, but without success. The same result attended every other plan of treatment, and she left Riga in 1834.

10. *Ichthyosis Cornea*. Countess L., a Polish lady, aged 16, a blonde, of pale sallow complexion and costive habit, but otherwise healthy, was attacked with the above-mentioned affection in her third month. Her whole body, with the exception of the face, axilla, palms of the hands, and soles of the feet, is covered with a yellowish, rough, and wrinkled cuticle, like that of a hen's foot, particularly about the elbow and knee joints. The reticulated cuticle is beset with thin jointed scales, which fall off in great quantities in bed, and drop on the ground as she walks. This affection diminishes in summer, and increases in winter, without ever disappearing altogether. Her younger brother labours under the same disease; the rest of the family are healthy.

Dr. Blossfeld states, in conclusion, that he has frequent opportunities of observing syphilitic eruptions which bear a considerable analogy to lepra, but has omitted to give any account of them, for obvious reasons.

Journal der Praktischen Heilkunde. September, 1836

On Excision of the smaller Joints. By Dr. GERNET, of Hamburg.

AMONG the many improvements in modern surgery, the substitution of excision of diseased joints and of carious portions of bone for amputation of the limb, is not the least important. A considerable number of years have now elapsed since this principle was first applied to the treatment of caries of the larger joints, and, in a late Number of the Hamburg Journal, we find Dr. Gernet, assistant surgeon of the Hamburg hospital, ably advocating its extension to the treatment of caries of several of the smaller joints. He reports seven cases, which were operated upon by Fricke, in the hospital. In four of these, the caries affected the bones of the hand, and, in the remaining three, those of the foot. Of the former number, the disease in three affected the metacarpal joint of the thumb, and was produced in one case by the point of an awl penetrating the joint; in the second, by the cut of an axe; and, in the third, it was ascribed by the patient to a wire, which, some months previously, he had drawn tightly round the thumb; but the chief cause seemed to lie in the cachectic state of the constitution. In the fourth case, the caries affected the metacarpal joint of the middle finger, and, as in one of the former instances, was caused by the wound of an awl.

In those cases in which the foot was the seat of the disease, the caries affected, in the first, the joint between the first and second phalanx of the great toe, and could not be ascribed to any evident cause; in the second, no caries existed, but a large exostosis, which was attached to the head of the first phalanx of the great toe, greatly incommoded the patient. In the third case, the caries affected the metatarsal joint of the great toe.

In all of these cases, the operation was performed by removing the extremities of both bones; and this was judged the more advisable proceeding, even in the case of exostosis, where no lesion of the opposite articular surface existed. The ends of the bone were then approximated as nearly as could be done without much difficulty or causing great uneasiness to the patient, and retained in this position by a peculiar apparatus. Union by the first intention was tried in two instances, but afterwards abandoned, and the wound was stuffed with charpie. Torsion was employed to arrest the hemorrhage from the mouths of bleeding vessels; a practice which seems to be followed in all operations in the Hamburg hospital.

It has been advanced against the operation of excision of the smaller joints, that the time required for the cure, and the length and pain of the operation, were more than an equivalent for any advantage which could be derived from a shortened and ankylosed finger, and which perhaps would prove a worse than useless appendage to the patient. We shall therefore examine the results of the sever operations. Of the four cases in which the hand was affected, the success in three was complete. On an average, five and a half weeks were sufficient for the union of the wound and solidification of the bone; and all three were capable of returning to their work at the end of seven weeks. Two of them, in whom the metacarpal joint of the thumb had been affected, regained completely the use of the finger and the other, the fourth case, was fast regaining the use of the finger when he left the hospital. In the third case, the wound healed slowly; but the patient was unable to use the thumb, and was dismissed at the end of three months, in rather an unsatisfactory state. Of the foot cases, the first was able to use the extremity at the end of five weeks; but, in the second, the cure was retarded by necrosis of a portion of bone till the end of the tenth week. Four weeks sufficed to effect the cure in the third.

In the first set of cases, the operation, including the time occupied in dressing the wound, lasted from fifteen to twenty-six minutes, the two extremes. In the second, ten, or at most fifteen, minutes were required. In no case were bad consequences, which could be ascribed to the nature of the operation, observed to follow.

On the Treatment of Varus and Pes Equinus, by the division of the Tendo Achillis. By Dr. BOUVIER.

DR. BOUVIER presented to the Academy of Medicine (1) the extensor tendons of the foot of a dog, which had been divided, thirty days before it was killed; (2) a man, aged forty-six, whom he had cured of the pes equinus, by a division of his tendo achillis. The divided extremities in the case of the dog were united by a solid substance, which was an inch in length, consisting of a new fibrous tissue, having externally the form and appearance of the tendon itself, adhering loosely to a cellular sheath in which it was enclosed, so as to fulfil perfectly, as far as solidity and mobility were concerned, the functions of tendon. It illustrated comparatively the case of the man. The deformity of his foot had existed from infancy. The section of the tendo achillis was performed in the month of February. At the present time (October) it is difficult to ascertain the point at which the tendon was divided, although, immediately after the operation, the extremities were placed more than an inch apart, and this distance has since increased. The foot forms a right angle with the leg, the heel resting on the ground both whilst standing and walking, and the muscles of the calf act upon the calcaneum, so as to extend the foot as before the operation. The treatment lasted only fourteen days.

In a subsequent paper, Dr. Bouvier records other cases successfully treated both by himself and others. His mode of operation is as follows. The patient lies upon his belly. A slight incision is made with a lancet, parallel to the axis of the limb, a few lines in length, and at that part where the tendon is the smallest and the least prominent. Through this incision is introduced, beneath the skin, a small straight knife, with a blunt point. The tendon is then divided from without inwards, without wounding the integuments. The limb is then placed in such a way as to keep the ends of the tendon separated, the foot being flexed on the leg. The subsequent treatment is very simple. It consists in gradually increasing the flexion of the foot, until it forms an acute angle with the leg: this is accomplished in an indefinite time, according to the condition of the articular surfaces of the tarsus. If, conjointly with the elevation of the heel, the foot is turned inwards, the apparatus must be so constructed as to correct this deviation. The reunion of the tendon takes place rapidly. The cicatrix is of considerable solidity, by the fifteenth or twentieth day. Two of the six patients operated on were affected with varus; one being a young man, twenty-three years of age; the other, a female aged fifty-four. The form of the foot in each case was greatly improved. The other four as well as a patient operated on by M. Roux were completely cured. They all were affected with pes equinus.

Bulletin de l'Academie Royale de Medecine, Nos. 1, 5, 6. 1836.

Account of a new Instrument for plugging the posterior Nares.

By M. MARTIN SAINT ANGE.

THIS instrument (which its inventor, M. Saint Ange, names *Rhinobyon*,) consists of a straight canula of silver, five inches long, and of the diameter of a crow-quill. To one extremity is attached, by means of a circular groove, a small delicate bladder; the other, slightly belled, is furnished with a stop-cock; between this and the centre of the canula runs a slide (*courseur*;) with a projecting tongue.

In a case of epistaxis, the bladder-extremity of the instrument is passed through the affected nostril to the posterior nares; air is blown in, through the bell mouth; the cock is closed; the moveable tongue prevents the descent of the instrument into the pharynx by its pressure against the ala or septum of the nose, and is securely fixed by a screw. Air has been found preferable to cold water. A portion of intestine about three inches in length, or other similar membrane, might be made to fulfil the double indication of plugging the nares posteriorly, and of exerting pressure on the nasal walls.

Bullet. Gener. de Therap. Med. et Chir. 15 Janv. 1837.

Treatment of Sprains by Friction and Shampooing. By Dr. MAIGNIEN.

Dr. M. says, all the means hitherto employed for the treatment of these affections have had for their aim the stopping the development of inflammation, and combating it when existing; by the use of refrigerants and astringents in the first instance, and by antiphlogistics and emollients in the second. The method which he adopts was suggested to him by the homœopathic doctrines.

The treatment consists, in the first instance, of rubbing with both hands, lightly, the injured member, so as not to excite much pain. The friction is to be gradually increased in rapidity and degree. After about an hour of this treatment, some movements of the articulation are to be attempted in every direction but that in which the injury took place: this should be continued for four or five minutes. At this period much alleviation is generally experienced; the tension, heat, and swelling which existed, gradually subsiding. These means are to be continued for thirty or forty minutes longer, when the articulation is to be moved in every direction. In another fifteen or twenty minutes, the patient is to be requested to walk; and, to complete the cure, the friction and shampooing combined are to be continued two or three times on the same or following day. When the articular ligaments are broken, the success will not be so complete; nevertheless, the swelling and pain will be diminished by these means.

The following is one of the three cases reported.

M. C. fell from a wall twenty feet high, and his right hand received all the weight of his body. A violent strain, with swelling and acute pain, was the result of the accident. Dr. M. was not present, and leeches and cataplasms were applied. He ultimately, however, saw the patient, and found the member in a state of forced pronation, and stretched upon the bed, incapable of motion, without great pain. Dr. M. commenced the frictions and shampooing, and in two hours the patient could use a stick, and announced that he felt no more pain.

Gazette Medicale de Paris. December, 1836.

Make-shift Surgery. By Dr. NEVERMANN, of Mecklenburg-Schwerin.

I LATELY read, in the second part of Grossheim's Operative Surgery, the following description of a camp-contrivance for amputating: "In a dry spot, two parallel trenches should be dug, two and a half or three feet deep, six feet long, and two and a half distant from each other, so that the intervening space may serve as a table, the two extremities of this strip of ground must be cut through, making a clear passage all round." This recalled to my mind a lecture of Professor Fenger, of Copenhagen, delivered in 1830: "It sometimes happens in war-time," said this gentleman, "that in consequence of the numerous amputations, the instruments become quite blunt. When this occurs in a town, we may send, to a shop for some razors, fixing the blade firmly with a strip of adhesive plaster before using them. In the Camp we may employ the razor which every soldier carries in his knapsack. Much in this way," continued the professor, "Falckenthal, surgeon-in-chief of the Danish fleet, was forced to manage, after the bloody sea-fight with the English under Nelson, in the road of Copenhagen. When all his knives were rendered useless, he sent to one of the best shops for the razors that were exposed in the window; wrapping sticking plaster round the handles, he performed eighteen amputations the same night with these tools."

Gräfe und Walther's Journ. für Chir. xxiv. Band. iv. Heft.

On the Treatment of Varicocoele. By Dr. FRICKE, of Hamburg.

IN varicocoele, Fricke's treatment consists in drawing a thread directly through the varicose tumour. This method, he says, acts, at least in the greater number of cases, not by producing obliteration of the veins, but by exciting in them a higher contractile power, and an exudation of plastic lymph; thereby inducing a thickening of their coats, and at the same time a diminution of their caliber.

The following two cases may serve as illustrations:

CASE I. A man, aged 40, suffered from varicocele to such an extent as to produce incipient atrophy of the left testicle. Two threads were passed through the tumour, and nine days later another thread. After twenty-four days, it was found necessary to repeat the operation, when two more threads were passed, and again, in about six weeks, another. The enlarged veins did not entirely regain their natural condition, but the tumour was greatly diminished, and the testicle manifestly increased in size.

CASE II. A gentleman, aged 40, had been affected for sixteen years with swelling of the right epididymis, a consequence of gonorrhœa. Two years before applying to Dr. Fricke, he began to suffer, in consequence of an injury, from a like affection of the left epididymis, accompanied by a varicose state of the veins of the cord. A thread was drawn through the largest of the varices; the operation was followed by very slight reaction. On the fourth day, the patient ceased to make a constant use of the suspensory bandage, and two days later he gave it up entirely. Twelve days after the operation, pressure, by means of slips of adhesive plaster, was applied to the testicles; and, ten days after the commencement of this application, the patient was able to take a walk of four hours. Within four weeks from the commencement of the treatment, no trace of the varicose swelling remained; and, at the end of four months, the patient still remained free from any return of it.

Zeitschrift für die gesammte Medicin. Band iii. heft 4.

MIDWIFERY.

Fracture of the Skull and Rupture of the longitudinal Sinus during Natural Labour. By Dr. MICHAELIS, of Kiel.

A WOMAN, aged thirty-six, was taken in labour with her first child on the 27th February, 1836. After slight pains for thirty-six hours, the waters came away at four P. M. of the 29th. At this time the midwife found the os uteri open, but full and hard. At eight o'clock on the following morning, Dr. M. was called, and found the patient, as is common in Germany, on the labour-chair, with sufficient but not severe labour pains, the vagina extremely tender, dry and hot, and the perineum tense, and the child's head completely in the pelvis. The woman was put into bed, and warm cataplasms applied to the genitals; and in two hours things were completely changed, the parts being now only moderately swelled, lubricated, and not painful, while the head advanced under good pains, only apparently strongly jammed against the immovable coccyx. At eleven o'clock the child was born. Examination immediately after the child was born detected no deformity of the pelvis, the diameter of the outlet being certainly not less than three inches and three quarters. The child breathed both during birth and immediately after, but then died.

The head was much disfigured, and, on examining it carefully, the following appearances were found: 1. The frontal bones were normal as to structure and uninjured, but so flattened that the frontal and parietal portions lay nearly in the same place. 2. The fontanelle and anterior two-thirds of the sagittal suture projected high up, and the sagittal borders of the parietal bones were thrown open and partook of the displacement. 3. The left parietal bone was not otherwise affected, and, with the exception of a few points which were very thin, it was well-formed. 4. In the posterior third part of the sagittal suture, where the parietal bones were firm and well formed, and the suture only two lines in width, were seen small livid portions of the longitudinal sinus forced between the bones. 5. The occipital bone was flattened and forced deep under the parietal bones, but not otherwise injured. 6. The right parietal bone, which during birth had been directed towards the promontory of the sacrum, was found covered anteriorly and above with effused blood, and, on removal of the periosteum, was found fractured

in five places. These fractures or fissures were as follows: *a.* a small fissure near the *tuber ossis frontis*, four lines long; *b.* a much larger one running from the fontanelle through the centre of the parietal bone, very nearly two inches in length; *c. d.* two small fissures half an inch in length, near the sagittal suture. There were also four small openings, from incomplete ossification, in the same bone, which was throughout very thin.

On opening the skull, there was found no extravasation beneath the fissures, but posteriorly under the sagittal suture the longitudinal sinus was found ruptured, and there was an extensive coagulum on the cerebrum on both sides, under the dura mater, and on the tentorium cerebelli.

The peculiarity of this case is, the occurrence of so extensive injury during natural labour and with a well-formed pelvis; and is explained by the natural weakness of the bone and the unfavorable position of the head during birth.

Neue Zeitschrift für Geburtskunde. B. iv. H. 3. 1836.

MEDICAL STATISTICS.

Statistics of Suicide.

[We find, among the miscellanies of *Wildberg's Jahrbuch d. ges. S. A.* für 1837, several scattered notices on the statistics of suicide. We have collected them, and here present them at one view to our readers.]

Paris. The number of suicides in Paris were, for

1830, 269	1832, 369	1834, 436
1831, 377	1833, 333	1835, 477.

This is in the ratio of about *one suicide* out of every *one hundred deaths*; while, observes the reporter, in England, the land of suicide (!), the proportion is not greater than *one* out of every *five hundred deaths*.

[Although we think it cannot be denied that the average number of suicides, in relation to the total deaths, is considerably less in England than in France, we much doubt whether the ratio here given, of $\frac{1}{500}$, be correct; since so little attention is paid by the government of this country to the collection and publication of the details.]

Naples. During the year 1836, out of a population of 357,283 souls, there were not more than thirty-one cases of suicide.

St. Petersburg. The number of suicides in this capital, for the years 1831, 1832, and 1833, did not exceed 104; which presents an average of about thirty-four annually. They were mostly confined to the lower classes of society.

Bohemia. In this kingdom, during the year 1835, the deaths amounted to 119,438. Of these there were 188 cases of suicide, which is in the ratio of about one suicide out of six hundred deaths.

Lower Austria. From the 1st November, 1835, to the end of October, 1836, there were 49,556 deaths, and out of these 109 cases of suicide. This gives a ratio of about one in 457.

Wildberg's Jahrbuch d. ges. S. A. 3 B. 2 h. 1837.

Statistics of Stillborn Children.

[We consider this subject important in relation to infanticide. When, in a doubtful case, a medical jurist attempts to estimate the probability of a child having come into the world living or dead, he assuredly ought to be prepared with a knowledge of the results which have been derived from statistical enquiries relative to live and still birth. If this kind of knowledge answer no other purpose, it must have the effect of rendering him cautious in the expression of an opinion. The subject, however, is not without interest to the general practitioner in numerous other points of view. In the following extracts we shall not confine ourselves

ctly to foreign sources, being anxious to render our view of the subject as complete as we can.]

I.

Bohemia. In 1835, the births were in this kingdom 160,871, of which 2,561 children were stillborn. This nearly gives a ratio of only one child born dead out of every sixty-three births; an extraordinarily low proportion.

Lower Austria. From 1st November, 1835, to the end of October, 1836, the births were 49,658; of which number, 1,215 were stillborn children. This is nearly in a ratio of one in forty-one. The still-births were twice as numerous among *legitimate* as among *illegitimate* children; and, with regard to *sex*, the stillborn males were to females as about four to three among the legitimate births. Among the stillborn illegitimate children, the sexes were nearly equal.

Pressburg. In the year 1835, there were born 1,385 children; of which, fifty-three were born dead. This is a ratio of about one in twenty-five.

Innsbrück. From the 1st November, 1834, to the end of October, 1835, the births in this town amounted to 314, of which seventeen were stillborn; a ratio of one in eighteen. The stillborn males, even in this small number, were to the females as two to one.

Wildberg's Jahrbuch, loc. cit.

II.

Geneva (City). During the ten years from 1814 to 1823, there were born, as the mean annual average, 511 children; out of which number thirty-four were born dead, giving a ratio of one to fifteen for the still-births. In the ten years from 1824 to 1833, there were born, as an annual average, 581 children; of which thirty-three were born dead, about one in nineteen. The mean annual births were, however, the whole period of *twenty years* over which the observations extend, 546; and the mean annual number of still-births was, for the same period, thirty-two, about one in seventeen. Of the mean annual births, the males were to the females as 261 to 262; in the still-births, as eighteen to fourteen. We learn by this that, as the preponderance of total births is on the side of the male sex, so is the preponderance of still births. It is to be observed, however, that the number of children born dead was liable to great yearly fluctuations, being sometimes as high as one-seventh, and sometimes as low as one twenty-seventh of the total births.

In a medico-legal view, it is interesting to ascertain the ratios of the stillborn among *legitimate* and *illegitimate* children, whenever this is practicable; since the great majority of alleged cases of child-murder lie among the *illegitimate*.

Out of 9,433 *legitimate* births, during the whole period of twenty years, 517 children were born dead, or one child was born dead in every nineteen legitimate births. Out of 1,092 *illegitimate*, there were 129 born dead, or one in 8.4 cases.

These results, deduced from observations on nearly eleven thousand births, show that the stillborn are more than *twice as numerous* among illegitimate as among legitimate children. This is exactly what we might expect; since the circumstances under which illegitimate children are born tend to render their coming into the world alive very uncertain. The want of care and attention at the time of delivery, which generally takes place in secret, as well as the anxiety of mind under which the mother is commonly labouring, are facts that perhaps sufficiently explain the difference observed. The result of the Genevan observations is, it will be seen, entirely opposed to that deduced from the statistical survey of Lower Austria. Notwithstanding that, in the two cases, the total births of the illegitimate children are nearly *equal*; and that, in respect to legitimate children, the total births in Lower Austria are *five times as numerous* as those of Geneva; and, therefore, admitting only one-fifth of the possible error which would attach to those of Geneva, we are inclined to place greater confidence in the Genevan result, not only from the very high probability which attends it, but also from the circumstance that observations extending over a long series of years are much more to be trusted than those which are confined to a single year.

Among the illegitimate, it was found that there was a slight preponderance of males over female births, as well among those children which were born living as

among those which were born dead. The number of stillborn *males*, taking the total births, was much greater than that of females. The ratio for the whole period of the Genevan tables, twenty years, was as four to three. This difference has been ascribed, and perhaps with justice, to the generally greater size of the head and body in the male; conditions which necessarily expose the child to greater risk during delivery. As a summary of the stillborn to the total births, the following statement may be taken:

1 male born dead in	15.59 births.
1 female	18.60 —
1 child	16.91 —

Paris. To his remarks on Geneva, the author of the report, M. Mallet, has appended a statistical summary derived from observations made during a period of *thirteen years*, namely, from 1819 to 1832, in the capital of France. It is as follows:

1 male was born dead in	16.48 births.
1 female	19.67 —
1 child	17.90 —

Marseilles. According to the statistical survey of the department of the Bouches du Rhone, in the city of Marseilles there is one child born dead in sixteen births. *Ann. d'Hygiène et de Méd. Lég. Janvier, 1837.*

III.

Prussia. In the recently published volume of the Statistical Society of London, we have met with a valuable paper founded on the researches of M. Hoffmann, of Berlin. It represents a statistical view of the births and deaths in the Prussian states during a period of *fifteen years*, from 1820 to 1834. It is entitled to our consideration, not only from the reputation of the compiler, but from the fact of its comprising several *millions* of births, extending over a long period of time. We shall confine our extracts to that portion of the paper which is relevant to the question now under examination.

In the fifteen years, there were born in the Prussian states, 7,593,017

Of these, there were born dead, 257,068

This gives a ratio of rather above one child born dead in every 29.14 births; that is to say, the stillborn formed rather more than 3.38 per cent. of the total births.

This vast compilation also shows the same striking difference in the mortality of male and female children during birth which we have already had occasion to point out. M. Hoffmann refers this difference to the same causes as ourselves. In the above period of fifteen years there were born, of *males* 3,906,544, and of *females* 3,686,473; of which were born dead, *males* 147,705, and of *females* 109,363. These numbers give a general ratio of males born dead to females 1.35 to one; or, for every one hundred stillborn *females* there were 135 stillborn *males*.

The influence of legitimacy and illegitimacy is not noticed in this paper, probably from the great difficulties which must have attended the collecting of satisfactory evidence on this point, among so many millions of births.

Trans. Stat. Soc. Lond. 1837. Vol. i. Part I., p. 13

IV.

From October, 1835, to October, 1836, in the Lying-in Charity of Guy's Hospital, there were 630 births, and, among these, thirty-four children were born dead, in about *equal proportions* of the two sexes. It is worthy of remark, that *only eight* out of the total number of deliveries were premature; an important circumstance, and one which ought always to be ascertained, to allow of fair statistical comparisons; since it is beyond all question that the ratio of live to still births must vary for the different periods of gestation at which a child is born. The ratio of the still-born here amounts to one-eighteenth of the total births.

Out of 766 applicants to the Charity during the year, it was ascertained that

had already given birth to 2,460 children; of which, 133 were stillborn,—a
 of one in eighteen. It is curious thus to find that the ratios should be alike,
 ough, as will be perceived, the births from which they were deduced were four
 as numerous in the one case as in the other. This fact, in our view, fur-
 es at the same time strong intrinsic evidence of our having reached a near
 roximation to the truth.

Dr. Ashwell, in Guy's Hospital Reports; IV. April, 1837.

Our readers will have perceived that some of the results differ very widely; but,
 e except Bohemia ($\frac{1}{10}$), and Lower Austria ($\frac{1}{11}$), which numbers representing,
 hey do, merely *one annual result*, and differing so materially from all the others
 ur list, we do not hesitate to exclude from our calculation, we shall have a
 un result of $\frac{1}{20}$: i. e. that *one child out of twenty* is stillborn. This result, it is
 e observed, is deduced, at the lowest computation, from nearly *eight millions*
 irths]

TOXICOLOGY.

*periments on the Effects of the Hydrated Per-Oxyde of Iron as an Antidote
 to Arsenious Acid.* By Dr. VON SPECZ, Professor of Chemistry in the
 Theresian Academy of Vienna.

IN the year 1834, as our readers are aware, Dr. R. W. Bunsen and Dr. A. A.
 thold published a small work at Göttingen, on the use of hydrated per-oxyde of
 as an antidote to arsenic, in which they claimed for this remedy all the pro-
 ies of a true specific. With the view of testing the accuracy of their results,
 Von Specz prepared a large quantity of the hydrated peroxyde of iron, and
 ituted a series of experiments with it, on animals.

Experiment 1. On the 5th of October, 1834, at ten o'clock in the forenoon,
 lve grains of white arsenic, mixed with a portion of boiled meat, was adminis-
 d to a cat six months old. At twelve, retching and vomiting commenced. An
 mpt was made to administer the antidote mixed with water, by means of a tin
 el, but the animal was so extremely restive, that no more than a drachm of the
 rated peroxyde could be given. Death occurred about one o'clock.

Experiment 2. On the 15th of June, 1835, at ten o'clock in the forenoon, a
 ple of the white oxyde of arsenic was given in some sausage to a dog six
 uths old. Half an hour afterwards, Dr. Von Specz attempted to introduce the
 dote, by means of a syringe furnished with an elastic tube. The dog, however,
 the tube, and was otherwise so unmanageable, that scarcely any could be admi-
 ered. He died at half-past twelve.

Dr. Von Specz finding that the hydrated peroxyde of iron could not be given in
 efficient dose in this way, made the following change in the mode of exhibition.

Experiment 3. On the 28th of October, 1835, at ten o'clock in the forenoon, a
 chm of finely powdered arsenic was administered to a mastiff six months old,
 ch had been sparingly fed the day before. About five minutes afterwards, an
 ice of the dry hydrated peroxide of iron, finely powdered, and mixed with a suffi-
 nt quantity of fried liver pudding, was laid before him. He ate the whole, and
 rwards drank about three ounces of milk. About eleven o'clock, he had some
 d evacuations from the bowels, but still appeared lively. About three o'clock
 a. he looked dejected, went to his bed, and lay there quietly; during the night
 ad five fluid evacuations. On the 29th, he looked dejected, did not stir from
 bed, and neither ate nor drank. On the 30th he ate a little meat, drank about
 ounces of milk, and returned to his bed. On the morning of the 1st of
 vember, he was quite lively, and ate every thing that was offered to him.

Experiment 4. On the 10th of December, 1835, at ten o'clock in the forenoon,
 rachm of finely powdered arsenic was given in some pudding to a bitch, twelve
 uths old. Five minutes afterwards, an ounce of the antidote was given, mixed
 h liver pudding, the whole of which was devoured by the animal. At eleven
 ock she went to her bed, appeared shy and timid, and refused to eat. She

remained quietly in her bed the whole night, without vomiting or purging. On the morning of the 11th she had three fluid evacuations from the bowels, and did not appear to be ill; on the 12th she was running about as usual.

The foregoing mode of exhibiting the antidote to animals may be employed until vomiting commences; after this occurrence, it must be administered by means of a syringe.

As one sixth of the quantity of arsenic administered in Experiments 3 and 4, is more than sufficient to kill a dog, Dr. Von Specz looks upon the hydrated peroxide of iron as a true specific, and thinks that its failure in any given case is to be attributed to its being employed too late, or given in too small a quantity. In order to ensure the giving of a sufficient dose, ten times the quantity of hydrated peroxide of iron must be administered; but a much larger quantity may be safely given, as this remedy does not exercise any deleterious effect on the animal economy. In order to obtain the remedy in a state of purity, and free from any admixture of copper, he recommends the precipitation of the iron by ammonia, and states that this preparation when properly made, and preserved in bottles with good glass stoppers, will retain its virtues for a very considerable time. The following is the mode of exhibition which he recommends in cases of poisoning by arsenic.—*R. Olei Amygdal. dulcis, Pulv. Gummi Arabici, Pulv. Sacchari Albi aa 3ij. teresimul et affunde, sensim terendo, Aquæ destillatæ 3xv.; Hydratis Ferrici 3ij;* of this mixture, previously well shaken, a dessert-spoonful is to be given every three minutes.

Dr. Von Specz resumed his investigations the following year, but instead of the pure hydrated peroxyde, he employed substances in which it is known to exist in considerable quantity, and which require no previous preparation, namely, rust of iron, and hæmatite (red iron ore.)

Experiment 1. On the 16th of January, 1836, at ten o'clock in the forenoon, a drachm of finely pulverized arsenic, mixed with about an ounce of fried liver pudding, was given to a dog twelve months old. Immediately afterwards, a mixture of two ounces of hæmatite with seven ounces of liver pudding was offered to him, the whole of which he devoured, and then drank a small quantity of milk. Forty minutes afterwards, he was attacked with violent retching; the anterior extremities were extended spasmodically forwards, and the posterior drawn backwards, as is usual in cases of poisoning from arsenic; he also had severe vomiting, and convulsive spasms of the abdominal muscles. At eleven o'clock he went to his bed and was peevish; the retching continued during the afternoon, and he had five dark-coloured evacuations from the bowels. On the 17th of January, he remained the whole day in his bed, refused to eat or drink, and had six dark-coloured evacuations. On the 18th he appeared quite lively, sprang to meet the servant, and ate and drank with much desire.

Experiment 2. On the 19th of March, 1836, at eleven o'clock in the forenoon, a drachm of finely powdered arsenic, mixed with three-quarters of an ounce of liver pudding, was given to a dog four months old, and immediately afterwards an ounce and a half of rust of iron mixed with six ounces of liver pudding. The animal ate only three fourths of the antidote, and then drank a small quantity of milk. At half-past eleven he vomited, but still appeared lively; at one o'clock he had a green evacuation from the bowels. During the afternoon he had five alvine evacuations and frequent retching, but no vomiting. In the evening he went to his bed, and remained there quietly during the night; on the morning of the 20th, he had several dark brown fluid evacuations, but was in other respects lively, had a good appetite, ate bread, and did not exhibit the slightest trace of illness.

Experiment 3. On the 19th of March, 1836, at two o'clock in the afternoon, a drachm of finely powdered arsenic, which had been previously dissolved in two ounces of hot water, was poured down the throat of a dog four months old, while the solution was still warm, by means of a tin funnel, and about ten minutes afterwards, an ounce and a half of rust of iron, mixed with a quantity of milk, was administered in the same way. Five minutes afterwards, the dog was attacked with convulsions and retching, and dropt down as if dead. After fifteen minutes he got up, crawled into a corner, and vomited violently. During the night he had

several dark-coloured alvine evacuations. On the 20th he was sullen, and refused to eat; on the 21st he was fresh and lively, and greedily ate some bread offered to him.

Experiment 4. On the 24th of March, 1836, at nine o'clock in the forenoon, a drachm of arsenic, mixed with an ounce of liver pudding, was given to a dog four months old, and then an ounce and a half of hæmatite, mixed with five ounces of liver pudding: the animal devoured the whole. Forty minutes afterwards, he was attacked with retching and convulsions followed by severe vomiting; as soon as the retching ceased, he ate up again what had been ejected from the stomach. At twelve o'clock he began to vomit again, became dejected, and went to his bed; he whined, retched continually, and his jaws were covered with a whitish foam. During the afternoon he had several alvine evacuations of a reddish colour, trembled, and was affected with constant retching and convulsive twitches. In the evening he was more tranquil. On the 25th he was quite lively, sprang to meet us, and ate with a good appetite.

Experiment 5. On the 24th of March, 1836, at eleven o'clock in the forenoon, a drachm of finely pulverized arsenic, mixed with an ounce of liver pudding, was given to a dog three months old, and immediately afterwards an ounce and a half of lapis hæmatites mixed with five ounces of liver pudding; the animal consumed only two thirds of the antidote. Twenty minutes afterwards he began to vomit, and at the same time had an evacuation from the bowels: he was then attacked with retching, vomiting, and convulsions, which lasted until one o'clock; during this time he vomited six times. At two o'clock he became dejected, shivered, and sought his bed; the retching was extremely severe, and his jaws were covered with foam. These symptoms disappeared about eight o'clock in the evening. On the 25th, he remained in his bed; about ten o'clock in the forenoon, he vomited twice a white frothy fluid; at eleven, he had some fluid evacuations from the bowels. On the 26th, he had several greenish brown evacuations, but appeared lively and ate with appetite.

From these experiments Dr. Von Specz is led to conclude, that rust of iron and hæmatite, although they do not prevent all the bad effects of arsenic on the system, may, in defect of the hydrated peroxyde of iron, be employed as antidotes to that poison. To the hydrated peroxyde, which is capable of neutralizing all the deleterious properties of the poison, he assigns the first rank as an antidote to arsenious acid, next to this stands rust of iron, and then, *sed longo intervallo*, hæmatite, which in consequence of its slow operation, may be used without any beneficial result where the poison is exercising a very powerful action on the system. Experiments 1, 4, and 5, of the second series, shew distinctly the predominant influence of arsenic on the system, although the hæmatite was administered immediately after the poison, and before its specific effects could be produced. The animals, it is true, did not die, but the counteracting powers of the antidote were not manifested until nearly three hours after its exhibition. These objections do not apply with any thing like the same force to rust of iron, which Dr. Von Specz thinks may be advantageously employed as an antidote in defect of the hydrated peroxyde. Its great efficacy as an antidote is shewn in Experiments 2 and 3 of the second series. The remarkable effects of the arsenic in Experiment 3 are to be attributed to the mode of administration, for Dr. Von Specz has repeatedly found that the poison operates much more rapidly when introduced into the stomach into a state of solution. A drachm of arsenic in powder does not produce its deadly effects on the system in less than six or eight hours, while the same quantity dissolved in warm water destroys life in a much shorter time. Rust of iron has also the additional advantage, that it can always be procured with facility.

Med. Jahrbücher des k. k. O. St. xix Band. 4 Stück. xx Band. 1 Stück. 1836.

Case of Poisoning by Liquor Potassæ. By DARTO-MASSART,
Pharmacien at Mons.

Mr. D., aged thirty-five, drank, instead of wine, a quantity of water of potash. Soon perceiving the error, he complained of severe pains in the epigastric region

and nausea, and, in the course of a quarter of an hour, of general coldness; face pale, presenting the appearance of intense suffering. A solution of tartaric acid was administered, (four drachms to the pint of water,) and given at short intervals. Sinapisms were applied to the feet, and emollient fomentations to the abdomen, with frequent enemata. In a short time the symptoms abated, and he began to grow warm; a slight perspiration continued for two hours, followed by a black stool. Two days after, the tongue and back part of the mouth threw off a very thick and tough membrane. The patient took small quantities of broth, and shortly recovered his health.

Gazette Médicale de Paris. November, 1836.

VETERINARY SURGERY.

Experimental Researches regarding Hydrophobia. By M. CAPELLO, of Rome.

THE following observations are reported in a French journal by M. Furnari, but are the results of the labours of M. Capello.

M. Capello has published two memoirs, in which he endeavours to prove that hydrophobia, after its first transmission to another animal, does not preserve its poisonous properties. He brings forward a number of facts in support of this opinion. The following are a few of them.

1st. A dog spontaneously mad, bit a young man and an ox. The young man died five months after the bite with all the symptoms of hydrophobia. The ox three days after receiving the bite exhibited hydrophobic symptoms and was shot, but before this could be effected, he bit several animals of his own and of different species. Not one of these was affected with hydrophobia.

2d. A dog and cat were inoculated with the saliva of a dog affected with spontaneous hydrophobia. On the fourteenth day after inoculation the dog died, and on the thirty-fourth the cat died. With the saliva of these latter animals, another cat and dog were inoculated, but after suffering confinement for seven months, they were liberated, not exhibiting any hydrophobic symptoms.

3d. In the month of March, at Tivoli, a dog spontaneously mad, bit two other dogs; one was killed; the other attacked with symptoms of hydrophobia bit three or four women, but not one of them were ultimately injured.

4th. In January 1818, a dog belonging to M. Capuccini, was bitten by one labouring under hydrophobia. Thirty-eight days after, it exhibited premonitory symptoms and ultimately became mad, rushed out into the streets and bit four dogs and two children. It was proved that the dog first affected laboured under spontaneous hydrophobia. M. C. assured the owners of the four dogs, and the parents of the two children, that the dog who bit them laboured under hydrophobia the result of communication, or in the second degree, and that consequently they would be exempt. This prognostication was completely verified.

5th. Another case is related of a dog affected with this disease from communication and which bit many dogs and five individuals, but none of these ever presented symptoms of hydrophobia.

With regard to the cause of hydrophobia, M. Capello says it is neither rage, nor hot or putrid food, nor privation of liberty, nor excessive fatigue, nor suppressed perspiration; but only the venereal desire carried to excess and not satisfied. This causes great suffering, and he thinks this is quite sufficient to give rise to such a change in the economy of the animal as to produce hydrophobia. He is of opinion also, that the particular structure of the generative organs confirm this. In these animals the vesiculæ seminales are wanting, and consequently the prolific fluid cannot be excreted without copulation.

[If there is any truth in M. Capello's theory, respecting the cause of hydrophobia, it would be expedient, as a general rule, to have dogs castrated, leaving only a sufficient number to keep up the breed. The dogs used in dog-carts, for instance, would, we apprehend, draw equally well without their testicles, as horses do.]

Journal des Connaissances Médicales. November, 1836.

PART FOURTH.

Selections from the British Journals.

(FOR THE QUARTER ENDING APRIL 30, 1837.)

ANATOMY AND PHYSIOLOGY.

A Description of the Pulmonic Pulse. By P. MOLLISON, M.D.

THIS term Dr. Mollison applies to a phenomenon which "consists in the expulsion of a certain quantity of air in the chest, synchronously with each contraction of the heart." The fact of such expulsion he ascertained by inserting into one nostril a bent glass tube, open at both ends, with one leg shorter than the other, and suspending the respiration. "Upon examining the water in the tube, it was seen moving backwards and forwards, a distance of five-sixteenths of an inch, in a manner analogous to the pulse at the wrist, and synchronous with it." Generally the fluid is driven from the lungs; in some cases it is driven towards them. The cause of this phenomenon Dr. M. considers to be "the diastole of the branches of the pulmonary arteries, which, running side by side with the bronchial ramifications, will readily compress them to a certain extent, and thus expel a portion of their contained air." It remains to be seen whether this observation is capable of any useful application either in physiology or practice.

British Annals of Medicine, March 17, 1837.

Physiological Observations on the Pulsations of the Heart, and on its Diurnal Revolution and Excitability. By Dr. KNOX.

THIS is a very interesting and important paper, containing numerous original observations, and leading to conclusions, not merely interesting in a physiological point of view, but which may be found useful in the practice of medicine. In the year 1815, Dr. Knox published, in the Edinburgh Journal, an essay on the same subjects, of which the present paper may be regarded as a continuation. We regret that our limits prevent us from giving in this place more than a few of the results of the individual experiments and the general conclusions:

Dr. Knox contends that there can be no such thing as an *average pulse* in man, seeing that this varies every hour of the day and night, and after every meal, and is extensively influenced by merely rising from the sitting to the erect posture. Some data, however, existed on this point before Dr. Knox, and some are added by him. Bryan Robinson gives the average pulse of two men, at every hour of the day, (whilst sitting,) from eight A.M. to eleven P.M., taken for several weeks; the mean of the one 76, and of the other 78. Dr. Knox gives the mean pulse of twenty-five young gentlemen, taken between the hours of twelve and two: it was 72.4 sitting, and 75.4 standing; their mean age was twenty-five. The pulse in infants and young children was found by Dr. Knox too variable to lead to any decided result. The following are some of the results observed by M. Billard: in forty-one infants, from one to ten days' old, the pulse varied from 80 to 180; in eighteen of these it was less than 80, and in ten between 110 and 130. In thirty-six children, from one to two months, it varied from 80 to 150; in fourteen of these it was from 80 to 85, and in seven from 125 to 130. In twenty children, from two to three months: in fourteen it was more than 90, and in four from 70

to 80. M. Quetelet found the average pulse of thirty-six infants, at birth, one-half of each sex, to be as follows:—*Max.* 165, *Min.* 106, *Med.* 135.

It is extremely difficult to reckon accurately the normal respiration, and, consequently, the relation of the inspirations to the pulse. The most accurate observations are those of Quetelet, who gives the following results obtained from 300 males of different ages:

	Birth to 5 yrs.	From 5 to 10	From 10 to 15	From 15 to 20	From 20 to 25	From 25 to 30	From 30 to 50
Mean number of pulsations	136	88	78	69	69	71	70
inspirations	44	26		20	18	16	18

The pulsation and respiration vary, both absolutely and relatively, during waking and sleep. The following are some of the average results obtained by Quetelet on children and women:—*Pulsations*, awake, 91; asleep, 78: *Inspirations*, awake, 28; asleep, 22.

The difference between the frequency of the pulse in the different postures of the body has been long known, as also the variation of the pulse with the time of the day, exercise, &c. We apprehend, however, that the general opinions are very incorrect on these points, and will be set right by several of Dr. Knox's observations. In the case of a gentleman, aged twenty, of the most regular habits, the following are the results of a week's observation of the pulse:—*Average morning pulse*, lying, 62; sitting, 78; standing, 90. *Average evening pulse*, lying, 56; sitting, 67; standing, 77; making what has been termed the *differential pulse* (or the difference between the pulse in the lying and standing posture,) twenty-eight in the morning and twenty-one in the evening. The same gentleman was made the subject of another series of observations for the space of fourteen days, and the following are the average results obtained: Pulse, at seven A.M. (in bed,) 58.5; at nine A.M. (sitting and writing,) 94.6; at eleven A.M. (sitting at lecture,) 82.6; at one P.M. (standing,) 83; at three P.M. (sitting at lecture,) 74.9; at five P.M. (sitting at home,) 72.9; at seven P.M. (ditto,) 73.6; at nine P.M. (ditto,) 71.6; at eleven P.M. (ditto,) 65.7. During these observations, breakfast was taken at half-past seven, dinner at half-past five, coffee at half-past eight; and no wine, spirits, or malt liquor was drunk.

Several tables are given to illustrate the effects of exercise. The following numbers represent the average of three observations made on a young gentleman, *after walking fast*, viz.: 1st, one mile in a quarter of an hour; 2d, four miles in one hour; 3d, one mile in ten minutes. *Pulse after the walk*: after first five minutes, 106; second ditto, 96; third ditto, 86; fourth ditto, 89; fifth ditto, 87; sixth ditto, 87; seventh ditto, 84.

The following are Dr. Knox's *general conclusions*, which, however, he very modestly wishes to be considered as only *his own*; leaving it to his readers to deduce from his facts such others as they may seem to them to warrant.

"1. The velocity of the heart's action is in the direct ratio of the age of the individual, being quickest in young persons, slowest in the aged. There may be exceptions to this, but they do not affect the general law.

"2. There are no data to determine the question of an average pulse for all ages.

"3. There is a morning acceleration and an evening retardation in the number of the pulsation of the heart, independent of any stimulation by food, &c.

"4. The excitability of the heart undergoes a daily revolution; that is, food and exercise most affect the heart's action in the morning and during the forenoon, least in the afternoon, and least of all in the evening. Hence we should infer that the pernicious use of spirituous liquors must be greatly aggravated in those who drink before dinner.

"5. Sleep does not farther affect the heart's action than by a cessation of all voluntary motion, and by a recumbent position.

"6. In weak persons, muscular action excites the action of the heart more

powerfully than in strong and healthy individuals; but this does not apply to other stimulants, to wine, for example, or to spirituous liquors.

"7. The effects of the position of the body in increasing or diminishing the number of pulsations is solely attributable to the muscular exertion required to maintain the body in the sitting or erect position; the debility may be measured by altering the position of the person from a recumbent to the sitting or to the erect position.

"9. The law of the differential pulse is not universal. There are exceptions to be found even in those in perfect health. It is also possible that there may be some in whom the diurnal revolutions of the pulse takes place only in consequence of the use of stimulants. But this has not been proved satisfactorily.

"10. The most powerful stimulant to the heart's action is muscular exertion; the febrile pulse never equals this.

"11. The law of relation between the inspiration and pulsation of the heart has been stated by M. Quetelet." *Edinburgh Journal. April, 1837*

PATHOLOGY, PRACTICAL MEDICINE, AND THERAPEUTICS.

On the External Application of Opium in Bronchitis and Croup.

By Dr. Bow, of Alnwick.

Dr. Bow has been in the habit of employing opium externally, on an extensive scale, for some years, in the treatment of some internal diseases; and its benefit in the bronchitis and croup in children are, according to his report, really wonderful. "These diseases," he says, "are suddenly and effectually subdued by this simple means. In a few minutes after the first application, there will in most cases be a decided amendment. In some cases, with well-marked symptoms, one application has been sufficient to effect a cure." He adds, that he has had six or seven years' experience of this plan of treatment, and has not lost a single case from bronchitis. The opium is formed into a liniment as follows: R. Opii, ʒj.; Sapo, ʒss.; Liniment. Camph. comp. ʒviij. M. Digere per aliquot dies; and rubber upon the chest. The process is described by Dr. B. as follows: "I order the child to be laid across the nurse's knee, with the head depending, so that the ammoniacal vapour from the liniment may not affect the nostrils and eyes. I then pour the liniment on the breast in such quantity as to require a brisk motion of the nurse's hand, to prevent it from running down the sides. This she applies to the breast, neck, and bowels; and, as it dries, I continue to renew it, until from two to four frictions, or thereabouts, have been used. An hour afterwards, if there be no amendment, I repeat it, applying the liniment also to the back and limbs."

It must be confessed that the success here announced is not a little startling to us as practitioners of some experience, and, like our brethren, too often witnesses of the dangerous consequences of pulmonary inflammation in infants. As Dr. Bow, however, details what he has seen, we request our readers' attention to the practice, which we ourselves purpose putting to the test, in the first case of bronchitis that we meet with. We own we shall not be disappointed if we meet with a much less degree of success than that recorded by Dr. Bow.

It is but justice to Dr. Bow, as a rational practitioner, to state that his practice is founded on peculiar views of inflammation, and that he believes infantile bronchitis, in particular, would be cured, "if left to nature and good nursing," in forty-nine cases out of fifty; while, when treated as an inflammatory disease, by the lancet, "two out of three perish."

Lancet. March 18, 1837.

On Castor-Oil Frictions in Gout. By W. E. POPE, Esq.

Mr. POPE reports the effect of this remedy on the authority of a friend, an officer resident in India. This gentleman says that it has been tried in the East with the

greatest success, and that he himself had cured two or three cases of gout by it, after other remedies had failed. The mode of applying it is to rub in the oil at bedtime into the affected limbs, and then wrap them up in warm flannels. The remedy is said to act like a charm, seeming to exert a specific influence in curing the disease. We wish we could believe in the efficacy of this simple treatment.

Lancel. April 8, 1837.

On Nux Vomica in Affections of the Digestive Organs.

By THOMAS MELLOR, Esq., Surgeon, Manchester.

MR. MELLOR informs us that he has been in the habit of employing nux vomica in disorders of the digestive functions for several years, and with the greatest benefit. The cases in which it has been most beneficial are those of pyrosis from functional disorder of the stomach, in which Mr. M. considers it as "almost a specific; so immediate, and in most instances so prominent, has been the relief obtained." In pyrosis from organic causes it is very useful. In almost all cases of dyspepsia, also, not complicated with inflammation of the mucous membrane, but where the stomach is obviously debilitated, as indicated by pain and distention after eating, flatulence, &c., Mr. M. considers the remedy as advantageous. He exhibits the nux vomica in the form of powder, in doses of three, four, or five grains, suspended in cinnamon water, with mucilage and some tincture of cardamoms, thrice daily. He has never found any ill effects from it.

Med. Gazette. March 4, 1837.

An Account of Tubercles in the Air-Cells of a Bird, and some Observations on Tubercles in general. By R. HARRISON, M.D., &c.—*Dublin.*

THIS observation is interesting, and is as greatly in favour of Dr. Carswell's views as it is strongly against the views of Mr. Carmichael, respecting the origin of tubercles in general. It is justly observed by Dr. Harrison, that the occurrence of the tubercles in the more open structure of the great air-cells of the bird (in the present case a male gannet,) enables us to trace many of the characters of tubercles more distinctly than in the more complex tissues in which it is usually found in the higher animals.

This bird lived a month in captivity before he died, and sunk obviously from general cachexia and debility. No peculiar affection of the breath was observed. The following is Dr. H.'s account of the dissection.

"On raising the sternum I was at once struck with the number of yellow, white, or greyish tubercles with which the interior of the great air-cell on the left side was studded. The membrane, as it lines the ribs, (corresponding to pleura,) and thence extends as an imperfect septum between the thoracic and abdominal viscera, was thickly set with them. In size, form, and consistence, they presented every variety; some were small and circular as a pin's head, others as large as a sixpence, some were of an irregular or diffused form, but the circular shape prevailed; many were very firm, and almost dry, others more soft and pulpy to the feel, and several were semi-fluid about their circumference: in many the centre was depressed, and as it were shrivelled in the form of a dry circular nucleus, while in a few the same part was very prominent and conical, but dry and apparently inorganic or horny. Those of the smallest size were of softest consistence, but even these consisted of the same white or yellowish matter. There were only two spots that presented a resemblance to the grey semi-transparent tubercle so common on the human lung. Some of this numerous crop of tubercles adhered very closely to the membrane

* Dr. H. expresses his belief that birds have never been observed to cough or sneeze, and that "they are physically incompetent to make either of these convulsive expiratory efforts." We can only say that a tame cocatoo, now perched near us while we are writing, and who is very subject to coryza, appears to sneeze frequently and fully: we cannot, however, positively assert that there is no voluntary effort combined in the operation.—*Ed.*

which may be supposed their matrix, others less intimately, and some were so loosely connected that I lost several when passing a gentle stream of water over the surface for the purpose of cleaning the preparation. The softening and separation in all cases extended from the circumference inwards; the connexion appeared a mere agglutition, which a little maceration in water would easily dissolve; the surface of the subjacent membrane appeared free from any abrasion or abnormal appearance. The subject had been tolerably minutely injected, yet not a trace of blood-vessel could be detected either entering any of these tuberculous masses or connected to their base, and there was no vestige of inflammation, recent or remote."

A considerable portion of Dr. Harrison's paper is taken up in endeavouring to prove, in opposition to Dr. Carswell's opinion, that the *serous* membranes are more frequently the seat of tubercles than the *mucous* are; and, in order to reconcile the fact of their occurrence in the pulmonary cells, he attempts to show that these are in reality lined by a serous, and not by a mucous membrane, as is commonly supposed.

Dublin Journal. May, 1837.

On the Tonic Treatment of Erysipelas. By HENRY BULLOCK, Esq.

THE author adduces a few cases from the wards of St. Thomas's Hospital, to prove the contagious nature of erysipelas, and seems to consider that the establishment of this quality of the disease almost necessarily establishes the impropriety of antiphlogistic treatment, and the propriety of the tonic treatment by wine, &c. Our readers will not receive this as fair reasoning, neither will such of them as have experience doubt (as Mr. Bullock does,) that the same disease may require a different treatment in different situations and circumstances. Mr. Bullock informs us, that, from January to June inclusive, last year, thirty-two cases of erysipelas occurred in St. Thomas's Hospital, and were treated by wine, either alone or combined with tonics, from the first appearance of the disease, and all except two recovered. This certainly, as far as it goes, is evidence in favour of the mode of treatment pursued by Dr. Williams in that hospital.

Med. Gazette. March 4, 1837.

On the "Bruit du Diable." By T. O. WARD, M.D., Physician to the Birmingham Dispensary.

THE stethoscopic sound first described by M. Bouillaud under this absurd name, which we hope will not be naturalized among us, is chiefly heard in chlorotic and nervous subjects, over the course of the left carotid and subclavian, above the inner end of the clavicle. M. Bouillaud considers it to be intermediate between the bellows murmur and the musical sound of the arteries described by Laennec, and attributes it partly to a watery state of the blood, as it ceases to be audible on the return of health; partly to the rapid circulation so near the heart; and partly to the vicinity of the larynx, which acts as a sort of sounding board. As its name implies, the sound resembles that of a humming-top. A knowledge of it is rather of negative than positive value, as it might mislead the young observer to suspect organic disease when none exists. M. Bouillaud says he has observed above a hundred cases of it in the three years during which it has engaged his attention. Dr. Ward has met with five cases of it; and the object of the present paper is chiefly to assign a site for the sound different from that alleged by M. Bouillaud. Dr. Ward conceives the sound to be produced exclusively *by the veins*; but he fully agrees with M. Bouillaud in referring it to a too fluid state of the blood, with increased rapidity of the circulation. Dr. W. adduces the following arguments in support of his opinion:

"First, the sound has been heard over the course of the external jugular vein, as well as over the carotid arteries. Secondly, it is solely in this latter situation, and not always there, that the sound is so modified by the proximity of the carotid as to appear to be augmented by the ventricular systole. Thirdly, it is arrested

by pressure on the external jugular, when heard along the course of that vessel and, as is asserted by M. B., by a pressure over the carotid quite insufficient to stop the pulsation of the artery, but which would certainly obstruct the flow of blood through the internal jugular. Fourthly, it is increased by pressure, and by everting the head with the chin raised; because, under these circumstances, the caliber of the vein is diminished, and consequently the velocity of the current is increased. Sixthly, for the contrary reason, the sound is stopped by turning the head so as to shorten the vein and retard the course of its contents towards the heart. The greater distance the blood has to traverse in passing from the left side of the neck into the vena cava, will also explain the greater frequency of the sound on that side. Seventhly, the sound is arrested by pushing aside the larynx, because this can be accomplished only while the muscles of the fore part of the neck are relaxed, at which time the jugular vein is relaxed also; besides that, the larynx and trachea sometimes prolong, by their resonance, the pulsations of the carotid and the respiratory murmur, so as to simulate the bruit du diable when none exists. Eighthly, a violent or a prolonged effort produces regurgitation in the veins, and thus puts a stop to the flow and sound of their contents. When the sound intermits, I have been able to account for it by the pressure of the stethoscope, or by the position of the patient's head. Tenthly, the reason that the purring tremor, when felt, is slighter in these cases than when a contraction of the cardiac orifices exists, arises from the difference in the strength and tension of the vessels, by whose vibrations the phenomenon is produced."

The profession is much indebted to Dr. Ward for calling attention to this sound, for which we hope he will find an English name. We have ourselves always regarded it as a mere variety of the Laennecian sounds, and as having its origin in the arterial current: we do not feel quite convinced of our error by the ingenious reasoning of Dr. Ward.

Med. Gazette. April 1, 1837.

Taste of Quina MR. SHERWIN, of Hull, says that a bit of apple, chewed for a moment, will in an instant efface the bitter taste of sulphate of quinine.

Med. Gazette. April 1, 1837.

Remarks on the Treatment of Hydrocephalus Acutus. By Dr. MAYO.

THIS paper was read at one of the evening meetings of the College of Physicians. It contains nothing new; but it is a very valuable and interesting digest of the principles and practice of Whytt, Carmichael Smyth, Clarke, Dobson, Göllis, and Abercrombie, in hydrocephalus, interspersed with sensible and judicious critical remarks of the author. It passes in review, with much impartiality, the actual and relative value of bleeding, purging, mercury, and diuretics; and indicates the cases and stages in which they are respectively most applicable and useful. The essay does not admit of extract, but we recommend it to the attention of the young practitioner. The following observation ought to be present to the mind of every one called on to treat this most fatal disease: "Compared with the whole duration of the disease, the curable portion of it is very short, the mortuary portion very long. Hence it happens that the time for action has often elapsed before we are summoned; while, again, if we bring with us indeterminate opinions as to treatment, the disease will have gained a victory before we have resolved upon the weapons with which it is to be encountered."

Med. Gazette. April 8, 1837.

On the Influence of Gravity on the Circulation of the Blood.

By F. R. MOSELY, Esq., Surgeon.

THE object of this short paper is to call the attention of practitioners to the actual and probable effect of the posture of the body in the production and relief of diseases, by influencing the venous circulation, particularly in the head. The author says that it may be regarded as generally true, that, whenever the venous circulation

in any part of the body is favoured by the gravity of the blood under ordinary circumstances, congestion will be apt to take place from any change of the accustomed position. Thus, in the horizontal position, the veins of the neck and head, which are nearly passive tubes, become easily distended; and in this manner, Mr. Mosely contends, cerebral and nervous diseases are often induced, aggravated, or perpetuated. He says he has observed severe cephalic disorders emanating from a cause among the poor, from sleeping without a pillow; and in elderly people confined to bed, from whatever cause, he thinks he has not unfrequently observed obstinate nervous symptoms, which he thinks may probably originate in an altered state of the cephalic circulation, from the prolonged horizontal posture. He thinks these observations deserve attention. The influence of even a slight change of position in altering the circulation within the head must have been observed by every one in his own person: merely bringing the lower extremities from the dependent to the horizontal position, without changing the elevation of the trunk of the body,—as in turning from the sitting to the semi-recumbent position on the sofa, by lifting up the legs,—greatly disposes to sleep, no doubt from a cause; and every practitioner must have found happy effects, in certain nervous cases, from inducing the patient to sit up. Mr. Mosely says, that great benefit will be found in the treatment of fever from an apparatus placed under the pillow, to regulate the elevation of the head at pleasure.

The author also speculates on the effect of gravity in producing and aggravating pulmonary and other visceral diseases; and we have no doubt that his conjectures are just to a certain extent. He thinks that the comparative frequency of pneumonia on the left and on the right side, and also of congestion of the liver and spleen, may be possibly influenced by the habitual position of the patients in bed. He says, that "the mere confinement to the bed appears often to bring on cough and pectoral symptoms among old and infirm patients," not to be relieved so long they retain the horizontal position. He might have added, that Laennec, in his account of what he terms *Pneumonie des agonisans*, says, that the frequent superinfection of inflammation of the lung in such cases arises from the congestion produced by the imperfect circulation in the lungs; and this is strongly dwelt on as a cause, by MM. Hourmann and Dechambre, as a common cause of the disease in old persons, not moribund.

Med. Gazette. April 15, 1837.

Clinical Report of the Cases treated in the Fever Ward, No. 9, of the Royal Infirmary, Edinburgh, during the Year 1836-7. By DAVID CRAIGIE, M.D. F.R.S.E.

THIS is a very excellent report, drawn up with great accuracy, and containing much important matter, statistical, pathological, and practical: it includes all the cases treated from the 28th June, 1836, to the 12th February, 1837. We can only find room for a few extracts from the third part, entitled *General Summary*.

The whole number of cases treated amounted to 181; but from these, twelve cases are deducted, as not being cases of fever. In like manner, the actual deaths were thirty-one; but from this number eight are deducted, for the same reason. Following for these deductions, the number of fever cases, properly so called, are 169; of this number, twenty-three proved fatal,—i. e. 1 in 7½, or 135 per 1000.

Among the whole 169, in only fifty-four cases could the disease be with probability traced to contagion; in one, it was traced to contagion and a blow on the head; in two, to contagion doubtfully; in forty-seven it was imputed to cold, or to cold and moisture; and in two it was traced to drinking.

The day of the disease on which the patients applied for admittance was very various; in a few cases early, in general after several days' illness; the great majority were admitted from the fourth to the eighth day; the largest number on this point.

The greatest number of cases was admitted between the ages of ten and twenty, and twenty and thirty; those between thirty and forty amounted to not quite half

the latter; and the numbers admitted below ten and above forty were very nearly the same.

The following interesting results and observations conclude the Report :

"Upon examining the cases, with the view of ascertaining to what extent local affections of particular regions and organs prevailed, and classifying the cases treated according to the affection of particular organs, we find that, in a very small number of instances (2) was the febrile disorder free from symptoms of local complaint, and that in many cases more than one organ was affected. To give some idea of the complication of the febrile process, I have classified the whole of the cases treated and presenting symptoms of fever, in the following manner:

Symptoms of affection of the head alone occurred in	47
Symptoms of affection of the thoracic viscera, chiefly the lungs alone, occurred in	5
Symptoms of affection of the epigastric organs alone occurred in	7
Symptoms of affection of the throat alone occurred in	1
Symptoms of affection of the abdominal organs without diarrhoea occurred in	1
Symptoms of affection of the abdominal organs with diarrhoea occurred in	2
Symptoms of affection of the head and chest, occurred in	23
Symptoms of affection of the head and epigastric region in	59
Symptoms of affection of the chest and epigastric in	1
Symptoms of the head, chest, and epigastric region in	6
Typhomania and gangrene of the toes took place in	1
Gangrene of the lungs took place in	1
Symptoms of head disorder with double parotids, took place in	3
Symptoms of head disorder with single parotids, in	3
Symptoms of affection of the head, throat, chest, and belly	1
Symptoms of affection of the head, throat, and chest, in	3
Symptoms of affection of the head, throat, and epigastrium, in	2
Symptoms of affection of the head with diarrhoea	2
Fever without local affection	1
Fever with anorexia and articular pains	1

"From these numerical statements several important conclusions, illustrating the predominant characters of fever in this country, may be deduced.

"1. The first proposition to which these statements lead, is, that by far the most frequent form which fever assumes in this country consists in more or less pain of the head, generally referred to the frontal region, with suffusion of the eyes, which are turbid and watery, and more or less intolerant of light,—accompanied, further, with tenderness or pain in the epigastric or umbilical region, or both, some tension in that region, sometimes commencing with the frontal headache, sometimes following it, but always felt more or less intensely in the course of the disease. This combination of symptoms took place in more than one-third of the whole number of cases.

"2. The second proposition which results from the comparison of the numbers now given, is, that the next frequent form which fever assumes, is that in which symptoms of derangement in the cerebro-meningeal circulation take place, either alone, or in such an intense form as to obscure or mask every other local disorder. This form of the disease occurred in about two-sevenths of the whole number of cases.

"3. The complication which follows next in point of frequency is that in which the symptoms of fever are associated with those of disorder of the cerebro-meningeal circulation, and at the same time of some affection of the bronchial membrane, tubular or vesicular, or of the lungs. This complication took place in more than one-seventh of the cases. It will afterwards appear that the numbers show that this is by far the most fatal variety of complication.

"4. The class of cases next in frequency consists of those in which there were symptoms of tenderness or pain, with or without tension in the epigastric or umbilical region. This took place in one twenty-fourth part of the cases.

"5. Not very different is the proportion of cases which present at once symptoms of disorder in the head, chest, and epigastric region, being about one twenty-eighth part of the whole amount.

"Lastly, it appears that the number of intestinal affections is exceedingly small, since symptoms of disorder in the intestinal mucous membrane took place in two cases only, and of uneasiness of the abdomen with *stridor dentium*, probably from irritation of the intestinal membrane, appeared in one case only.

"From these numerical statements several important results, as to the occurrence of fatal cases, and the circumstances by which the fatal termination is influenced, may yet be deduced.

"In the first place, it appears that by far the largest proportion of fatal cases is found in that class which presented the twofold affection of the head and chest. Of the twenty-three cases constituting this class, there are not fewer than seven fatal cases, or one-third—and constituting one-third of the whole mortality.

"In the next place, it appears that a large proportion of fatal cases is found among those in which the symptoms of disorder of the head, chest, and epigastric region were associated. Of the six cases arranged under this head, three or one-half were fatal. This constitutes nearly one-eighth part of the whole mortality. Under the same head may be arranged the only case in which the symptoms of disorder were referred at once to the head, throat, chest, and belly, and which also proved fatal.

"It is remarkable, on the other hand, that, among the cases in which the symptoms of local disorder were confined to the head alone, the proportion of fatal cases is smaller than in either of the two other classes. Among the forty-seven cases referred to this head are found five fatal cases, or about one-ninth, and forming of the whole mortality less than one-fourth.

"Among the large class of cases, again, amounting to fifty-nine, in which the leading symptoms were referred to the head and epigastric region, the fatal cases were not more than seven or rather fewer than one-eighth, but forming one-third nearly of the whole mortality.

"The only class of cases in which no fatal case is found, is that in which the symptoms were confined to uneasiness, tenderness or pain in the epigastric region with or without distension."

Edinburgh Med. and Surg. Journal. April, 1837.

Remarks on the Physiological and Therapeutical Effects of Colchicum.

By ROBERT LEWINS, M.D.

PERHAPS the more scientific tendency of medical investigation, during the last thirty years, has somewhat misled the attention of practitioners from the careful study and just appreciation of the effects of individual remedies on the animal economy, in health and disease. Taking pathology for our guide, we have too often overlooked, in our practice, the value of those remedies, the precise agency of which is not explicable on certain received principles. Although the result of this has been a most beneficial simplification of our therapeutics, yet it has not seldom led to the neglect of remedies which experience had established as valuable, although their mode of action was unknown. It is for this reason that we are always pleased to see attempts to illustrate the therapeutical value of individual medicines; as, after all, pathological knowledge is barren unless it leads to surer indications of practice, and practice can never be precise or generally successful where the power of the agents it employs is undetermined. We are, accordingly, thankful to Dr. Lewins for having, in the present paper, called the attention of the profession to the examination of the powers and mode of action on the animal economy of one of our most valuable and energetic remedies. We think, however, that Dr. Lewins is mistaken when he states that "a great proportion of the medical profession in Great Britain have never even used this article in any disease, and are ignorant of its medicinal virtue, or at least underrate its efficacy." On the contrary, we think that in this part of the island no remedy is more frequently used or better appreciated by all intelligent and experienced practitioners; and we

believe we could refer him to more than one authority for its use in the very cases, and on the same principles, as he has himself employed it.

The object of Dr. Lewins, on the present occasion, is to illustrate the effect of colchicum in fever; and his paper contains the detail of five cases of this disease, treated with this remedy. Previously to using colchicum on the sick, Dr. L. made trials of its effect on healthy individuals; and certainly the most interesting portions of his communication is the account of these trials. In all the cases, the vinous tincture of the seeds was the form used.

First Series of Cases. (Healthy Individuals.) In the *first case*, 160 drops were taken by a youth, aged eighteen, in twenty-four hours; the first dose being fifty drops, and the last sixty. The result was, seven very copious stools, loss of appetite and debility for twenty-four hours.—*2d Case.* A youth of seventeen took 170 drops in nine hours, in doses of seventy, thirty, thirty, and forty drops: nausea and vomiting, and six copious stools, were the result.—*3d Case.* A youth, aged fifteen, took 130 drops in ten hours, and four doses; the first of forty, and the last three of thirty drops. Vomiting, and only one stool, were the consequence.—*4th Case.* A youth, aged twelve, took sixty drops in two doses, after an interval of eight hours. Nine copious watery stools were produced.—*5th Case.* A youth, aged seventeen, took forty drops at bedtime, thirty drops next morning, and thirty drops seven hours after; in all, 100 drops in nineteen hours. Vomiting, faintness, and five copious stools, were the result. The same boy afterwards took seventy drops at one dose, which was followed by vomiting and headach, but not by purging.—*6th Case.* A boy, aged ten, took eighty drops in twenty-four and a half hours, in four doses, of twenty, fifteen, twenty-five, and twenty drops. Great sickness and vomiting, and nine purgative motions, were the result.

In all these cases, the debility and feeling of illness soon disappeared after the action of the medicine.

Second Series. (Fever Cases.) All these were apparently slight, and such as we find to yield, in no long space of time, either to the remedial powers of nature or to common purgatives and refrigerants. They were all treated by colchicum, and in most of them convalescence seemed to set in shortly after the operation of the remedy as an emetic or cathartic, or both. In the *first case*, the colchicum was given in doses, first of thirty, and then of fifteen and ten drops, every three or four hours. Half an ounce was taken in one week, and no other medicine.—In the *second case*, forty drops were given at first, and thirty every three hours: 335 drops were taken in three days.—In the *third case*, the medicine was ordered in the same doses, but was obliged to be omitted, and other remedies used.—In the *fourth case*, the medicine was only continued during two days, and 100 drops were taken.—In the *fifth case*, sixty drops were first given, and then forty, and afterwards thirty every third hour. Half an ounce was taken in the course of forty-eight hours.

Dr. Lewins concludes the history of these cases with the following remarks, which we think may be applicable to certain forms of acute sporadic fever, but certainly not to fever generally. None of Dr. Lewins's cases had any character of typhus, and we believe he will find the results of his treatment in this form of fever very different from those exhibited in these here detailed.

"I shall conclude this communication by remarking, that, from the phenomena and results of the cases now adduced, I am convinced we may more certainly cut short fever, or at least break its force, by the judicious administration of colchicum, than by any other known means. I by no means, however, recommend that it should be trusted to exclusively in fever. Other medicines and means may, if deemed necessary or advisable, be employed, such as bloodletting, antimonials, the warm bath, &c. I, however, am disposed to think that these will seldom be required, if colchicum be boldly but prudently prescribed in the early stages of the disease. It is corroborative of my opinion, as to the efficacy of this potent drug, that its action on the animal economy is consistent with its therapeutical agency. The immediate effects produced by colchicum on the stomach, the liver, the skin, and on the circulation, are such as would lead us, *a priori*, to expect that

relief would be given to that state of the system which the most rational theory of fever presumes to exist."

We recommend to the notice of Dr. Lewins, and to our readers generally, a most excellent work of Dr. Barlow, "On the Bath Waters, Gout, &c." published in 1822; also to extracts from it, in the article GOUT, in the "Cyclopædia of Practical Medicine," written by the same distinguished physician: in these treatises, Dr. Lewins will find the action and therapeutic value of colchicum stated in a manner that will convince him that this author, at least, is fully aware of the principles on which this potent remedy should be prescribed.

Edinburgh Journal. April, 1837.

On the Cure of Headach by the Application of Leeches to the Schneiderian Membrane. By JOHN WALKER, M.D.

THIS mode of local depletion in affections of the head has, we believe, become more frequent since the publication of Mr. Wardrop's treatise. It is certainly very beneficial in certain cases, and is likely to be the more accredited because it is one of nature's ordinary remedies in congestion in this region. Every practitioner must have witnessed relief from severe headach, by the spontaneous flow of a very small portion of blood from the nostrils. We had occasion to notice a very striking case of this kind during the late influenza, in the person of a medical friend. Dr. Walker says, he has "found much benefit from this mode of treatment in the painful headaches peculiar to pregnant females; in those arising from irregularity or total suppression of the catamenia in plethoric habits; and in a few depending upon biliary derangement." Five cases of headach are briefly related, in which from one to four leeches, applied to the membrane on each side of the septum of the nose, were productive of immediate and permanent relief.

British Annals of Medicine. March 31, 1837.

Case in which seven Half-Crowns had been swallowed. By H. WAKEFIELD, Esq.

A MAN, sentenced to three years' imprisonment, swallowed seven half-crowns, from fear of their being taken from him. They produced no bad effect, and the matter was forgotten; when, more than twenty months afterwards, he came under Mr. W.'s care, complaining of slight pain and tenderness of the abdomen, and, while taking some ordinary medicine, one day the whole seven pieces "fell clattering in one motion into the closetool pan." This case is curious, as showing how little disturbance, in some cases, extraneous bodies excite within the bowels."

Med. Gazette. May 20, 1837.

On the Treatment of various Diseases by means of Creosote.

By SIR FRANCIS SMITH, M.D. &c., Dublin.

SIR F. SMITH has only employed creosote as an external application. He has successfully used it in Cancrum oris, and is "almost inclined to consider it a specific in Tinea capitis;" but the only details he gives are three cases of ulcer, in which its use as a lotion (undiluted,) was evidently most beneficial. The first case was one of primary foul and obstinate chancre; the second, fistula in ano; the third, obstinate ulceration of the mucous membrane of the nose: the cure in all was rapid, after recourse was had to the creosote.

[In making this extract from the pages of our very estimable contemporary, we cannot refrain from expressing our opinion that the learned editors are, in general, not sufficiently rigid castigators of the style of the valuable papers received into their Journal. If communications are hurriedly or slovenly written, we apprehend that an editor is not only justified, but called upon, by his office, to amend and polish the language of his correspondents. In the present paper, for example, we find, in one paragraph, the following clumsy and inaccurate phrases, among others

of a like kind: "The patient *was placed in a large linseed poultice, and, on seeing him again the following day, I was delighted to find the spongy, irregular bottom succeeded by a more firm structure.* . . . Both *cul de sacs* merged into one. . . . Four more applications, *spread over a fortnight*, had the effect of *bringing down the sinus to the surface, &c.*"

Dublin Journal. May, 1837.

Medical Problems. By WM. GRIFFIN, M.D., Limerick.

[THIS ingenious and well-written essay is occasioned by a review of Dr. Marshall's work on Spinal Irritation, in the second Number of this Journal, and is devoted to the consideration of the following questions:—"In those disorders which have gone under the name of spinal irritation, is there really any affection of the spinal cord or its membranes? or in what tissue or organ does the complaint, such as it may be, absolutely reside?" Our space will not allow us to enter, at any length, into the consideration of this subject at present; but we hope to have another opportunity of convincing Dr. Griffin that his views and our own only differ in degree, not in kind. It is true, as Dr. G. here remarks, that our "strongest objections applied more to the irrelevance or inaptness of many of Dr. Marshall's cases than to the principle he advocates;" and we would add, that our objections to Dr. Griffin's views rest a good deal on our belief, founded on considerable observation and experience, that more stress is laid, by Dr. G., on the local tenderness of the spine, as indicating the precise seat of the disease, than an enlarged and rigid induction warrants. That the great majority of the most striking symptoms of the cases referred by Dr. G. to spinal irritation, (using this term as indicating some unknown state of some part or other of the nervous centres generally, and of the spinal marrow in particular,) are justly so referred by him, we are not disposed to question; but we wish to see *the whole disease* considered philosophically, and the *spinal irritation* reduced to its proper value as a part, and not be regarded as all that is to require the attention of the practitioner; as if in this consisted the primary source and essence of the affection. We are aware that Dr. Griffin himself does not take this exclusive view of the cases, but many of his followers do; and, certainly, the great prominence which he has given in his writings to the term "spinal irritation," and in his practice to "tenderness of the spine," as indicating the precise seat of the irritation, have been productive, in our opinion, not merely of too limited pathological views, but of much ineffective and even injurious practice. We should be most thankful to receive from the pen of Dr. Griffin a work devoted to the consideration of the whole class of cases in question, viewed in their wider and, as we believe, truer bearing, as affections of the *Nervous System*; tracing them to their manifold sources in moral and physical influences, directly or sympathetically affecting the great nervous centres generally, and the spinal marrow more particularly; and we feel assured that, if he will do so, he will find that his views and ours do not very essentially differ. The subject is one of extreme interest, physiologically, pathologically, and practically, and involves the consideration of some of the most difficult problems of medical science. To the intelligent physician who witnesses the great mistakes daily committed in the diagnosis and management of such diseases, the pain and misery of which they are the source when best understood,—the singular phenomena presented by them in those protracted cases where we see young women confined to their bed or couch by them for years,—many years,—and yet arise almost suddenly, as if cured by enchantment,—there can be no more inviting subject; and we think that the industry and talents already evinced by Dr. Griffin in a more partial study of the subject, justify the belief that he is qualified to deal with it in the enlarged and more philosophical sense in which we think it should be regarded. That we may not appear to withhold all the strong evidence adduced by Dr. G. in corroboration of his own views, we extract the following table and brief remarks from the paper now before us:]

"Summary of Cases of Spinal Irritations.

	CASES.	PROMINENT SYMPTOMS.
A.	28 cases of cervical tenderness: 8 men. 8 married women. 12 unmarried.	Headach, nausea or vomiting, face-ach, fits of insensibility, cough, dyspnœa, affections of the upper extremities. In two cases only, pain of stomach. In five, nausea or vomiting.
B.	46 cases of cervical and dorsal tenderness: 7 men. 15 married women. 24 unmarried.	In addition to the foregoing symptoms, pain of stomach and sides, pyrosis, palpitation. In thirty-four cases, pain of stomach. In ten, nausea or vomiting.
C.	23 cases of dorsal tenderness: 4 men. 6 married women. 13 unmarried.	Pain in the stomach or side, cough, oppression, fits of syncope, hiccup, eructations. In one case only, nausea or vomiting. In almost all, pain of stomach.
D.	15 cases of dorsal and lumbar: 1 man. 11 married women. 3 unmarried.	Pains in the abdomen, loins, hips, lower extremities, dysury, ischury, in addition to the symptoms attendant on dorsal tenderness. In one case only, nausea.
E.	13 cases of lumbar tenderness.	Pains in the lower part of the abdomen, dysury, ischury; pains in the testes or lower extremities, or disposition to paralysis. In one case only, spasms of stomach and retching.
F.	23 cases, all the spine tender: 4 men. 4 married women. 15 unmarried.	The symptoms of all the foregoing cases combined.
G.	5 cases, no tenderness of spine.	Symptoms resembling the foregoing.

"In all making 148 cases; twenty-six of which were males, forty-nine married women, and seventy-three girls.

"Now, why is it that none of those twenty-eight who had tenderness of the cervical vertebræ, or of the forty-six who had tenderness of the cervical and dorsal, or of the twenty-three who had tenderness of the dorsal only, by chance or design, never complained of pain in the lower part of the abdomen, loins, hips, pubis, or lower extremities, or of ischury, or dysury, or hysteralgia? And, on the other hand, why is it that none of the thirteen patients affected with lumbar tenderness complained of nausea or pain of stomach, or cough, or oppression, or affections of the upper extremities." . . . "This tenderness is found to be very generally an accompanying symptom of the disease, but by no means a necessary one. It is wanting in many cases in which the result proved organic disease of the cord was going on, and it is sometimes absent in cases of mere irritation, not only in those in which the internal affection has continued after the tenderness has been removed by remedies, but in which it never at any time existed. Thus we often find in cases manifestly of this nature, where there is yet no soreness of spine, that

pain of side, or chest, or abdomen, or cough, or oppression, is produced by pressure on a particular vertebra. Tenderness of spine is a symptom of value as regards some points of diagnosis; but the doctrine and chief points of the existence of a state of disorder in the spinal cord, called irritation, preceded its discovery, and are independent of its presence."

Dublin Journal. March, 1837—

Diabetes cured by Diuretics. By HENRY SNOWDEN, Esq., Hull.

Mr. S. was led to employ diuretics in this case from considering that, in diabetes, there is always found an excessive development of the capillaries of the kidneys, which development he believes to be of the atonic kind, favouring secretion through passive congestion of the blood in them, and thus giving rise to the increased flow of urine: diuretics, he hoped, would act beneficially by stimulating the weak and distended vessels of the kidney.—A lad, æt. 17, entered the Hull Infirmary, on the 6th October, 1836, affected with diabetes (insipidus) of ten months' standing; the quantity of urine, on admission, being sixteen pints and three drachms, and he drank ten pints. Venesection, diaphoretics, tonics, &c., with animal diet, were tried in vain. On the 10th of February, 1837, the quantity of water being then twenty pints, he began to take the following medicines:—R. Pot. Nit. Div. Aquæ, ʒviij. M. cap. coch. ij. ampla ter in die, with a drachm of Sp. Æth. Nit. at bedtime, and a solution of Bitartrate of Potass for ordinary drink. This treatment was continued until the 2d March, after which he took only a little nitric ether infusion of quassia. On the 16th March he was discharged cured, the urine having progressively decreased from the third day after beginning the diuretics until the day on which he left the hospital, when it was only three and a half pints.

[We would not advise our younger readers to reckon too much on this fortunate illustration of the *similia similibus* principle; but it merits commemoration.]

Med. Gazette. April 22, 1837.

Case of severe Cough, ending in Rupture of the Lung and general Emphysema.

By F. G. HICKS, Esq.

A CHILD, aged ten months, after suffering about a fortnight with severe spasmodic cough, (probably whooping cough,) shewed signs of emphysema over the thorax, neck, and abdomen, and died shortly afterwards. On examination after death, the lungs were found to have given way at the root of the upper lobe of the right lung.

Ibid.

On the Use of the Nitro-muriatic Bath. By C. LENDRICK, M.D. T.C.D. &c. Dublin.

THE object of the present paper is to recommend, as a *general* bath, the partial bath many years since introduced into practice by Dr. Scott. Dr. L. was induced to employ this bath from witnessing, many years ago, extremely good effects from it when accidentally recommended by him; and in this essay he communicates his experience of its utility in several diseases. It is administered exactly as an ordinary warm bath, at a temperature of from 90° to 95°, twice or thrice a week, and for a period of fifteen or twenty minutes. To each bath (of from thirty to forty gallons of water,) from an ounce and a half to two ounces of strong nitric acid, and from two to three of muriatic acid, are added. The practice may be persevered in for months, and is strongly recommended by Dr. L. in that large class of cachectic diseases in which mercury seems indicated, but on which it often acts as a poison instead of a remedy, in the syphilitoid cachexia, the mercurial cachexia, &c., and especially in the affection "known to the public by the name of liver consumption." This disease, Dr. L. says, occurs generally in scrofulous habits, and may be connected with tuberculous deposit in the liver. There is a short, dry cough, loss of flesh, pain in the region of the liver, &c. It is one of the forms of the affection termed dyspeptic phthisis by Dr. W. Philip. In such cases mercury is often

d, and with the worst effects; while the nitro-muriatic bath is, according to Dr. L.'s experience, most salutary. "The hepatic, and even the pulmonary symptoms, seem to yield to its influence, and the patient regains flesh and strength."

From our own experience of the simple warm bath, and the nitro-muriatic foot-bath, in such cases, we are disposed to think most favorably of the more extensive application of the latter remedy recommended by Dr. Lendrick, and consider the session indebted to him for calling the attention of practitioners to it. However, we believe Dr. L. will find, on enquiry, that the general acid bath is more used in this country than he seems to be aware.]

Dublin Journal. May, 1837.

The History of a very extraordinary and unusually violent Case, (supposed to have been engendered by Glanders), which terminated fatally. By A. BROWN, Surgeon, 2d Dragoon Guards.

As the title implies, the exact nature and origin of this case are not certain. A man, who had charge of a glandered horse, and who, on the animal being killed, attended him and exerted himself a good deal in cutting up and burying the carcass, was attacked, the same night, with rigors, headach, irritability of stomach, followed by severe continued pains and stiffness in all the large joints, aggravated by the least motion. These pains continued in an extreme degree, and were followed by the appearance, on various parts of the body, of circumscribed tumours, which were hard, livid, and insensible to the touch. These tumours came on in succession, in different parts of the body: they exhibited at first a puffy swelling, which after the lapse of twelve or fifteen hours, became first of a vermillion colour, then dark-brown; the integuments over them became thick and callous, with superficial fissures discharging a thin acrid sanies. Before death, several of them commenced running into gangrene. About the eleventh day of the disease, a crop of wart-looking pustules appeared on different parts of the body. During the course of the disease, the right nostril was observed to be filled with a thick discharge, and the fauces were inflamed and of a purple colour. The pains continued excruciating and incessant until death, which took place on the thirteenth day of the case.

On examination the wart-looking pustules were found to be merely elevations of the cuticle containing a thick, violet-coloured lymph; and the livid tumours all presented the following singular state of parts: the soft parts, including the muscles down to the bone, were decomposed, of a dark colour, fetid, and interspersed with small purulent deposits; the subjacent bone was "covered by a cluster of warty, circular tubercles, the whole composed of fine cellular tissue enveloped in a thin membrane, and firmly attached to the periosteum." The Schneiderian membrane appeared throughout pale and thickened, and in one of the frontal sinuses there was a cluster of what a veterinary surgeon, who attended the dissection, considered to be "well-defined, ulcerated tubercles," and exactly similar in appearance to those found in the same cavities "in acute glanders in the horse."

[There seems every reason to believe that this disease derived its origin from the glandered horse, either during its lifetime or from its carcass. Mr. Brown is mistaken in believing that his case is peculiar in the disease being communicated otherwise than by the contact of morbid matter with the surface of incised or lacerated wounds." In our third Number, p. 241, he will find an account of several cases, not very dissimilar, in some of which the poison appears to have had no other mode of conveyance than one of those supposed in the case related by him.]

Dublin Journal. May, 1837.

We do not quite understand the meaning of the words which we have put in Italics, applied to tubercles.—ED.

SURGERY.

Case of Popliteal Aneurism. By R. MIDDLEMORE, Esq. Birmingham.

THIS case presents no peculiarities, except that rupture of the aneurismal sac took place from a fall about six weeks after the operation, and without any subsequent ill consequences. We notice it chiefly for the purpose of introducing the following remark by Mr. Middlemore.

"It appears to be a great advantage to cut through the skin and adipose membrane quite down to the fascia, or as nearly so as possible, with one sweep of the knife; for it may be remarked that when the skin and fat are divided by separate incisions, the wound is by no means so wide—does not gape so freely, and therefore does not afford so much room for subsequent manipulations—as when these textures are conjointly severed. There is a difficulty in making the necessary calculations, so as to apply the degree of force required to divide the skin and adipose substance merely, which none but an experienced operator can readily surmount. I am satisfied that an inability to accomplish this, or an unacquaintance with the necessity of doing so, occasions much delay in the performance of many surgical operations."

British Annals of Medicine. March 10, 1837.

Compound Luxation of the Humerus. By P. T. SCOTT, Esq.

A lad, æt. fourteen, had his shoulder dislocated by a fall from a horse, and the head of the bone thrust so far from its natural position as to be found "lying exposed on the anterior part of the chest, over the pectoral muscle." There was considerable loss of blood, and the integuments were greatly lacerated, and the first aspect of the wound was such as to suggest the propriety of amputation.

However, the limb was reduced, and the cure was affected without any untoward symptom; and the limb is now, in every respect, sound and supple.

Lancet. March 4, 1837.

On the Operation for Hernia, without dividing the Sac.

By M. W. HILLES, Esq.

To those who are acquainted with the records of surgery, or who have read Mr. Key's valuable memoir on this subject, Mr. Hillis's communication will possess no novelty. It is singular that he should consider the proposal made by him as new. This he does, he says, because he thinks no one before him proposed the division of the stricture outside the sac, "with the specific object of facilitating the reduction of the hernia by the taxis." To show Mr. H. how surgeons in general think on this point, we quote a sentence from our review of Dr. Parrish's work in our last Number. "He seems hardly to be aware of the object and intention which the surgeon has in view by dividing the stricture external to the sac; namely, that he may employ the taxis under a condition of parts which he has rendered more favorable to its successful application, in preference to subjecting the patient to the risk of peritoneal inflammation by opening the abdominal cavity." We ourselves, however, think so favorably of the plan of operating outside the sac, that we are not sorry that Mr. Hilles has brought the subject forward in the journals. Our readers are referred for a full account of it to Mr. Key's work.

Lancet. February 11, April 15, 1837.

Cases and Communications illustrative of Subjects in Military Surgery.

By SIR GEORGE BALLINGALL, Professor of Military Surgery.

THESE are cases communicated to Sir George, by his pupils and friends. The following are outlines of them:

First Case, (by A. S. ALLEN, M.D., Surgeon, R.N.) An Arab received a sabre-wound, which traversed the heads of the metacarpal bones of the little ring, and

middle finger of one hand, and the same bones of the opposite hand about an inch nearer their digital extremities, dividing at the same time all the arteries, veins, nerves, &c. in its course. The hemorrhage was considerable, but was ultimately estrained by tight bandaging and styptics. Dr. Allen saw the patient, for the second time, three weeks after the accident, when reunion of all the bones had taken place.

Second Case, (by the same.) *Spontaneous Separation of the Leg at the Knee-joint, from Gangrene.* Six months after the accident, Dr. Allen amputated the limb, sawing through the bone about an inch above its middle. Two small arteries, branches of the profunda, required ligatures; but, in the situation of the femoral artery, nothing could be observed but a small mass of firmly condensed cellular membrane.

Third Case, (by J. STEVENSON, Esq., Surgeon, E. I. C. S.) An Indian received a sabre wound a little below the outer edge of the deltoid, which cut across the belly of this muscle, and also the os humeri. The hemorrhage was arrested by tying a turban round the arm with great tightness. Amputation not being allowed, an attempt was made to heal the wound, which completely succeeded. No hemorrhage supervened, and the pulse could be perceived at the wrist on the third day. The wound was nearly all cicatrized on the twenty-sixth day; and on the forty-fifth the bone was firmly united. It is stated that, on the thirteenth day, the pulse was sixty-eight in the wounded arm, and eighty-two in the sound: was this really the case?

Fourth Case, (by MR. STRATTON.) *Fifth Case*, (by the late DR. MACKENZIE.) These were both examples of the division of the bone of the thumb by sharp instruments, and complete reunion by the first intention. In Dr. Mackenzie's case, the patient brought the separated portion of his thumb in his pocket.

Edinburgh Journal. April, 1837.

Observations on Extraction and Displacement of the Cataract.

By J. A. ROBERTSON, M.D. Surgeon to the Eye Dispensary of Edinburgh.

THIS is a very excellent statistical and practical paper, and, as far as it goes, places in a clear light the relative success resulting from the different modes of performing the operation for cataract. Dr. R. passes in review the advantages and disadvantages of—1. *Division*, or breaking down the lens in situ; 2. *Extraction*; 3. *Displacement*; including *Depression* and *Reclination*; in the former process, the lens being pushed perpendicularly downwards; in the latter, the lens being embedded in the vitreous humour, with its anterior surface turned upwards and its upper edge backwards. We can only find room to give some of the numerical results deduced by Dr. R. from the collation of numerous cases, and the conclusions which he has found himself warranted to draw from the whole facts and reasonings.

Out of 1307 operations by *Extraction*, there were 397 failures, or 30 per cent. (nearly). Out of 5729 operations by *Displacement*, there were 1004 failures, or 17 per cent. (nearly). This last series includes a great number of operations by *Depression* as well as *Reclination*; and Dr. R. remarks, that inasmuch as the latter operation is preferable to the former, so ought the results to be much more favorable if all the cases had been operated on by *Reclination*. The preceding results are collected from the writings of others. Dr. Robertson subjoins a statement of 179 cases of hard cataract, without any complication, operated on by himself. The results were as follows:

	Cases.	Cured.	Relieved.	Failed.
Extraction,	64	32	14	18
Reclination,	115	94	10	11;

showing a proportion of failures by *Extraction* of 28 per cent. (nearly), and by *Reclination* of only 9 per cent. (nearly).

The following are the conclusions drawn by Dr. R. :

"1. That the safest mode of operating when the cataract is soft is by breaking it down, and thereby effecting its absorption.

"2. That in all operations in which the needle is used, that instrument ought to be entered through the sclerotic, and not through the cornea.

"3. That in cases of hard cataract, complicated with the various diseases of the eye and its appendages, mentioned above, the needle ought to be employed, the mode of operating being adapted to each individual case.

"4. That hard cataract without such complications may be effectually removed by the operations of *Extraction* or *Displacement*.

"5. That the operation of *Depression* is impracticable, and that attempts to perform it will be productive of the most injurious results.

"6. That many of the accidents which may occur during the operation of *Extraction* cannot be avoided by any degree of skill or dexterity, and, therefore, form valid objections to the operation.

"7. That the accidents which may occur during the operation of *reclination* arise from faults on the part of the operator, for as soon as the needle is entered, he has complete command over the eye. They do not, therefore, form valid objections to the operation.

"8. That the resulting success from the operation of *Reclination* is very much greater than that from *Extraction*.

"9. That in cases of failure of the operation by *Reclination*, the eye, in the majority of instances, is not left in so hopeless a condition as when the operation of *Extraction* has failed.

"10. That, in consequence of the comparatively rare occurrence of violent inflammation after *Reclination*, there is infinitely less likelihood, than in cases of *Extraction*, of such depleting measures being required as may prove ruinous to the general health of the patient."

Edinburgh Journal. April, 1837.

On the Application of solid Nitras Argenti in the Gonorrhœa of Women.

By A. J. HANNAY, M.D. Glasgow.

THIS is a valuable practical paper, and well worthy the attention of surgeons who are called on to treat the class of cases to which it refers. The following extract give the essential parts of Dr. H.'s communication.

"Having noticed that some cases of gonorrhœa, with ulceration in the vagina and to which I had freely applied the nitras argenti, stopped in a most extraordinarily short period, I determined to select a few cases of uncomplicated gonorrhœa for trial. I accordingly did so, and found the effects to be very striking. I have repeatedly seen the discharge cease, never to return, in twenty-four hours. On the day after the application, I have often seen it changed in character, that is, lose its purulent form, and disappear in twenty-four hours more. I have kept such cases repeatedly under my eye for a month, and can declare that in the proportion of 90 in 100 there was no return of the discharge; yet no remedy had been employed after the nitrate. Though in some few cases there is a little pain produced, yet in by far the greatest number of instances no pain is experienced from the introduction and most free application of the caustic. It is painful, it is true, when it touches sores on the labia or more internal parts, but that smarting soon goes off, or, at all events, an anodyne instantly relieves it. In the greater number of cases it produces no phlogosis of the parts with which it comes in contact; but in some (say in one case in twenty) it does irritate to a degree that proves painful for a few hours but never in any one instance have I seen the pain continue longer than a few hours. I have never seen bubo induced by it. I have used it in patients in every month of pregnancy with the best effects, and never saw abortion produced. I know, by as careful examination as I could make, that it does not suppress the catamenia: in short, I fearlessly give it out as an infallible and safe remedy for this disease, without any one drawback but the vain fears of persons of no experience, or of such as are determined to oppose it. I have now employed it in above three hundred cases with unvarying success." . . . "I may add, that in about six cases

ly, out of more than three hundred, the vaginal discharge has continued after repeated applications: in all of these I found, by the use of the speculum vaginae, that there was ulceration of the lining membrane of the vagina, and that the case is not gonorrhœa. The application of the nitrate was not required more than once in 280 of the 300 cases."

The following is Dr. H.'s account of his mode of using the remedy.

"I introduce a stick of nitrate of silver into a quill, and tie a thread firmly round the lower part of the quill to fasten the caustic, which I leave projecting beyond the quill about half an inch. I generally smear the quill with a little lard, and introduce the nitrus argenti up to the os tincæ, or as far as it can be made to ascend the vagina. I then deliberately and slowly withdraw it, turning it round so as to bring it in as extensive contact as possible with the lining membrane of the vagina. I may add, that by accident the nitrate of silver has more than once broken the vagina, and could not be found. It caused me much alarm and anxiety at first, but though I would carefully avoid it, I now regard the occurrence as of very little importance."

Med. Gazette. May 6, 1837.

[Since the paper of which the foregoing is an abstract was published, the following important criticism on it has been published by Dr. J. M'Cune Smith, who was attached to the Glasgow Lock Hospital, the institution in which Dr. Hannay's observations were made.]

"1st. I deem the treatment of gonorrhœa in the female by the solid nitrate of silver a cruel practice, from the horror which those who have undergone it express when they call the 'burning their inside with caustic;' and also from a fact, of which the journals of the house give ample evidence, that the Lock Hospital is always full whilst Dr. Cumin has charge of it, but, on the other hand, does not average above four-fifths full whilst under the charge of Dr. Hannay.

"2dly. I deem the practice inefficient, because, of five patients who remained in the house on the 1st of January, 1837, 'cured,' according to the statement in the annual, by means of 'the solid nitrate of silver,' the discharge returned in all of them except one within a fortnight afterwards, and that individual was dismissed on the 7th of January. Of the five patients above alluded to, in one the catamenia have not appeared since (whilst there is no sign of pregnancy,) after a lapse of four months. A second, shortly after the application, was seized with a sanguineous discharge from the uterus, which, after lasting fifteen days, terminated in an early abortion. Another patient (B. K., page 341) stated, that on the very day of the application of the nitrate of silver, in the agony caused by it, she so strained the abdominal muscles as to cause double inguinal rupture, which she now labours under."

Med. Gazette. May 27, 1837.

Spontaneous Mortifications of the Toes treated by tightly Bandaging the Leg.

By J. C. SPENDER, Esq., Bath.

THIS case illustrates very happily the tonic influence of bandaging in a relaxed condition of the soft parts. When first seen by Mr. S., there was already mortification of one toe and incipient gangrene of the others. The following extract shows the condition of the parts and the progress of the cure:

"On examining the leg it was found to be considerably swollen, from the presence of adventitious deposits of a fluid and yielding character, particularly along the margin of the foot, and up the sides of the limb. Supposing that this unhealthy condition of the superficial structures of the leg materially contributed to increase, even if it did not produce that inactivity of the circulation, &c. upon which the mischief in the toe would be seriously augmented, I immediately applied a flannel roller very tightly around the limb from the root of the toes up to the knee, first covering the great toe with a simple dressing, and enveloping the second in an additional piece of flannel. The patient passed a better night, and on the next day the bulkiness of the limb was diminished, whilst the inflammation, which before had been extending along the dorsum of the foot, was arrested. The patient was

directed to take half a pint of decoction of bark during the day, and the same quantity of wine, together with a full supply of meat. The bandage was again tightly applied, and over it a second, for the double purpose of increasing the warmth of the limb and securing the full effects of compression. Under these measures there was a daily improvement, so that at the end of a week the leg was reduced to its proper size, the inflammation on the upper surface of the foot had disappeared, the second toe was restored to its natural temperature, and nearly to its natural colour whilst the curative stages were proceeding most favorably and quickly in the great toe itself. A line of demarcation was forming around the toe between the dead and living parts immediately contiguous to the posterior boundary of the original slough, but extending rather farther back at the surface of the toe opposed to the second. At this time the nail becoming loose, and finding it in the way, I thought it would be better to hasten its removal, together with its attached cuticle, by applying a linseed poultice; and the bandage was omitted, from being unable to commence its application from the root of the toes, in consequence of the presence of the poultice. After the poultice had been employed for two days, there was a frightful return of the old symptoms. The inflammatory state of the dorsum of the foot reappeared, the second toe was again livid, the limb was increased in bulk. I immediately threw away the poultice, applied very tightly the two bandages, and was glad to find that on the next day there was an arrest, and on the day after a removal of all the unfavorable symptoms. The bandaging was steadily pursued, the line of demarcation in the great toe progressively deepened, and the dead parts of the toe, embracing the first phalanx, and all the soft structures covering it, daily became looser and looser."

The recovery was complete, with the loss of the great toe.

Med. Gazette. May 13, 1837.

Case of Laceration of the Diaphragm. By T. B. CURLING, Esq. Assistant Surgeon to the London Hospital.

CASES of this kind, whether from injuries or spontaneously, are happily rare: only two instances (both of the first form,) have occurred at the London Hospital during the last ten years, where the number of accidents annually admitted considerably exceeds a thousand. The case now described is that of a strong muscular man, who fell from a great height, and was brought to the hospital with fracture of the arm, ribs, &c. He lived some days, during which time he experienced considerable dyspnoea and pain at the sternum; and it was observed that he breathed only by the right lung. On inspection after death, the eight superior ribs on the left side were found fractured; the left lung was completely collapsed, and pushed up to the top of the chest; and there was a rent, four or five inches long, in the diaphragm, through which the stomach, omentum, spleen, half the duodenum, the transverse colon, and a part of the thin edge of the left lobe of the liver, had passed into the left cavity of the pleura.

British Annals of Medicine. May 5, 1837.

MIDWIFERY.

1. *Observations on the Artificial Dilatation of the Mouth of the Womb during Labour, and upon instrumental Delivery, &c.* By ROBERT COLLINS, M.D. &c. Dublin.
2. *An Inquiry into the Management of the first Stage of Labour.* By E. W. MURPHY, M.D., Dublin.

BOTH these articles, written by accoucheurs of talent and experience, are published with the view of controverting and counteracting the doctrine so strongly advocated in the recent publications of Dr. Hamilton, of the propriety of inducing labour artificially at a certain period after the natural commencement of the process. As we have noticed them in a review of the Second Part of Dr. Hamilton's

"Observations," (prepared for the present Number, but postponed for want of room,) we advert to them in this place, merely to express our opinion of their great value and of the soundness of the doctrine advocated in them; and to assure our readers that they will find them worthy of careful perusal.

Dublin Journal. March and May, 1837.

On the length of the Umbilical Cord, and its mechanical Influence upon Parturition. By F. CHURCHILL, M.D., Dublin.

THIS short paper is valuable, both in a physiological and practical point of view. After stating the opinions of various writers on the length of the cord, and the supposed effect of this in modifying labour, Dr. C. gives a statistical view of all the exact admeasurements of the funis which he has met with, including 212 cases of his own. The total number of cases is 391. The shortest cord in these was twelve inches, and occurred in six cases; the longest was fifty-four inches, and only occurred in one case; the length which occurred most frequently was eighteen inches, and the next in frequency twenty-four inches. Out of 190 cases, Dr. C. found the cord round the neck in 52; the shortest cord found so disposed was eighteen inches, and occurred twice in 75 cases. The cord was never under two feet when coiled twice round the neck; nor under three when coiled thrice round. It was coiled four times round in one case where it was three feet, and also in one case where it was fifty-four inches. Whenever it exceeded two feet, it was generally round the neck.

From these facts Dr. C. concludes, that there is less risk from the twisting of the cord round the neck than is commonly believed. As labour may be most safely conducted when the cord is thirteen inches long, and as even ten inches may suffice when the placenta is extended laterally; consequently, since, in all the examples where the cord was round the neck, there were, at least, thirteen inches free, no risk need be apprehended, in ordinary circumstances, from such a state of things.

We give the practical application of the whole of the observations in Dr. Churchill's own words.

"By almost all authors we are impressed with the necessity of untwisting the coil around the neck, by slipping it over the head or shoulders, in order to give the child the benefit of the full length of the cord. In many cases this is very difficult; in some, it is impossible. We have seen that in by far the majority of instances this is perfectly unnecessary, as no evil consequences can follow, there remaining, allowing for the coil, an adequate portion of the cord free. The cord should in all cases be drawn down a little, to relieve the stress upon it, and to loosen the part round the neck; but, except in a very few cases, more will not be necessary."

Dublin Journal. March 11, 1837.

MEDICAL STATISTICS.

On the Statistics of the Negro Slave Population in the West Indies.

By A. M. TULLOCH, Esq.

THIS is a most valuable paper by a very able statistician. It proves a fact, highly important both in a political and medical point of view, namely, that the number of the black population in our western colonies is progressively decreasing and in a most remarkable degree. This decrease is scarcely in any degree owing to deficiency in the number of births, but almost entirely to the increased number of deaths. The mortality in this kingdom is stated by Mr. Rickman to have been one in fifty-one on the average of the five years preceding 1830; but that of the negro population in the West Indies has been one in thirty-six.* Another singular feature in this case is the fact that the ratio of mortality is so very much greater in the male sex than in the female, the proportion in adults being nearly double

* The island of Jamaica, however, seems to be an exception to the general rule.

among males. It is to this disproportionate mortality of males rather than to the high mortality of the whole population, that the great decrease of the negro population is to be attributed.

Neither is it, as might have been supposed, to any peculiarity in their condition as slaves that this great mortality is attributable, but to the same general cause that render the constitutions of one race of men unapt to be assimilated to the climate of other countries. This is a fact quite at variance with our preconceived opinions, and deprives the advocates of slavery of one of the strongest arguments usually addressed to its supporters on political grounds.

"It is an erroneous idea," says Mr. Tulloch, "to suppose that the negro race are exempt from the fatal influence of fever in the West Indies. It may not, indeed, produce the same wide-spreading devastation as among Europeans, but it creates at least thrice as great a mortality as among an equal extent of population in this country. Diseases of the bowels, too, are of very frequent occurrence, manifesting themselves in diarrhoeas, and occasionally also in dysenteric affections. Even where these produce not immediate fatal effects, their frequent recurrence is sure to debilitate the frame, and act as an insuperable barrier to the attainment of old age. But of all the diseases which tend to the rapid diminution of this ill-fated race, those of the lungs are by far the most frequent and fatal. Though none of the Parliamentary documents furnish any specific details as to the numbers who die annually among the slave population from this cause, yet all the evidence attributes a large proportion of the deaths to their peculiar liability to this class of diseases, particularly between the ages of thirty and forty-five, which in a great measure accounts for the high ratio of mortality at that period of life. Nor is the peculiar predisposition of the negro to this class of diseases confined to the West Indies, for it manifested itself in a still greater degree among that description of troops when employed in Ceylon, and has also been productive of much mortality among those in the Mauritius.

"Whether succeeding generations will become less susceptible of the diseases which that climate at present induces, and thereby the mortality be sufficiently reduced to enable the births to supply the yearly decrement by deaths, is a problem which time alone can solve; but, if not, there can be little doubt, as the decrease is now proceeding at the rate of a tenth part of the whole population every fourteen years, that before the termination of another century, this race will have almost ceased to exist in our West India colonies; and as there can now be no fresh importations from other quarters, unless nature supplies the great waste of male as compared with female life, we shall, even in the present generation, see all the colonies exhibiting the same remarkable superabundance of females as in the old settlements of Barbadoes and Antigua."

No satisfactory explanation is given of the superior mortality of the males in these islands, which is, as Mr. Tulloch observes, "certainly one of the most striking features ever exhibited in the vital statistics of any race.

"It seems difficult to assign any reason, for this remarkable exemption in favour of the females, more probable than that there may be some peculiarity in the constitution of that sex which renders them more susceptible of assimilation to foreign climates, and thereby less obnoxious to their influence. It has often been remarked that European females suffer less by a transition to, or residence in, tropical climates than males, which has been attributed to their habits, rendering them less subject to exposure; but when we find the same remarkable feature manifesting itself among a race of females who enjoy no such exemption from exposure, we are led to attribute it to some more general cause."

British Annals of Medicine. No. XIII. and XV.

Rate of Mortality in Sweden in 1810-1830.

THE very valuable paper on this subject affording important conclusions in what Mr. Farr terms *Vital Statistics*, we can only refer to: it does not admit of extract.

British Annals of Medicine. March 24, 1837.

PART FIFTH.

Medical Intelligence.SKETCH OF THE PRESENT STATE OF MEDICINE, AND
OF MEDICAL INSTITUTIONS, IN RUSSIA.

GEORGE LEFEVRE, M.D., late Physician to the British Embassy at St. Petersburg,
&c.

PART II.

OF THE MEDICAL PROFESSION AND MEDICAL INSTITUTIONS.

I. CLASSIFICATION OF THE MEDICAL PROFESSION.

is now generally allowed that there is no essential distinction between medicine and surgery, although practitioners of medicine may be divided into different ranks and classes. Perhaps there is no country where this indivisibility, as regards the practice of the profession, is more strictly maintained than in Russia. The division of medical labour, which in former times simplified the duties of the respective practitioners in England, has never been adopted in Russia, where a physician embraces all the branches of the healing art, and acts as physician, surgeon, and accoucheur. He does not practise his profession so generally as here stated, there is nothing to prevent him from using his own discretion in such matters. The physician in Russia is in fact, identical with the general practitioner in England, save and except that in no instance does he dispense his own medicines. I employ the term general practitioner, because in reality the apothecary, at least in the English acceptance of the word, does not exist in Russia. Persons bearing this designation are mere vendors of drugs and licensed preparers of physician's prescriptions: they are not supposed to be acquainted with more than the noxious and innocuous properties of the drugs in their rough state. In no case are they allowed to compound medicines, or even to prepare the most innocent drug, without a written order from a medical practitioner. Their shop, or *Apteka*, is no laboratory; for they are not wholesale chemists and druggists, but mere makers-up of prescriptions.

Many of the English physicians in Russia formerly persisted in adhering to the customs of their mother-country, as to the division of labour in the profession. In some instances, however, even the most orthodox have waived this point of etiquette. Dr. Cadell tried the experiment of inoculating the Empress Catherine for the small-pox; which same operation Dr. Halliday performed on all the Emperor Paul's children, though unquestionably this task appertained to the province of the surgeon. This combination of medical duties is not now a matter of choice, it is one of necessity, inasmuch as the interests of the mass of the community are to be considered of more importance than the ideas which a few individuals may form to themselves of medical orthodoxy; and in the present day all the English physicians living in Russia are, as already stated, *de facto* general practitioners.

Although in a practical sense, then, there is little difference in the duties performed by the different practitioners, of whatever rank they may be, still the superiority of the physician, in point of etiquette, most rigidly enforced in all cases where form is allowed to exercise its prerogative. There are several classes of practitioners, but the deference paid to each is not in a ratio with their medical, so much as their military or civil rank. The degrees conferred by the universities are the following:—Physician; Surgeon in chief; Surgeon in ordinary; Staff surgeon; Surgeon's mate; Hospital surgeon; Barber surgeon; Apothecary.

In general practice, there is no positive distinction in the labours allotted to the three first ranks. The physicians and the surgeons, in most cases, practise indiscriminately all branches of the profession. If they hold official situations in the military or civil service, then the difference of rank becomes immediately sensible. The physician receives homage from the surgeons, takes precedence as he passes through the wards of the hospital, signs documents, and makes valid his rank by several operations. The hospital mates, dressed in military uniform, march up and down the wards, halt, face about, and stand attention, as their superiors command them; for all society in Russia is divided into ranks and classes, and medical men are included in this category. Schlatzer informs us that, in 1781, "a physician ranked with a major in the army, and, as such, could drive four horses to his carriage; whilst those of inferior rank could drive only two. An apothecary at court had the rank of captain, and his apprentices the rank of ensigns. The surgeons of the district had the rank of lieutenants." In the present day, physicians are ranked in the eighth class of the nobility, and surgeons in the seventh.

There are few instances, perhaps, where any practical use or abuse of such a division can be allowed to operate, but in some cases the possibility may exist. It is almost a law of the realm that no individual holding superior rank, whether civil or military, can be in the wrong in case of dispute with an inferior; and the spirit of this law is not without its influence in medical concerns. The superiority here alluded to is the honorary rank conferred by the crown, and not the medical one granted by the universities. Two physicians, of equal standing in medical honours, may be widely separated in civil or military rank; and he who bears no insignia of the order of St. Anne or St. Vladimir must give way in consultation to him whose breast is adorned with stars or crosses.

The physician, when called to the service of the imperial person, the *Leibmedicus*, or body physician, takes precedence of all his brethren, and his opinion must prevail in all cases where there is any official duty concerned. In the former part of this sketch it was mentioned that one of the Czars, suspecting that the illness of an illustrious individual was rather to be construed into a disinclination to appear at court, sent his body physician to ascertain the fact. Very similar proceedings take place in the present day. Patients, attended by ordinary physicians, are occasionally visited by body physicians, in order that they may enjoy every possible medical advantage, and this frequently without their request.

The hospital mates and surgeon's mates are completely under military control, although attached to civil institutions. They are subjected to punishments of various kinds for any impropriety of conduct.

The apothecaries, as before observed, are not to be considered as the same class of men who are so denominated in England. They are mere venders of drugs and preparers of recipes, and their shops are all licensed by government.

The first court *Apteka* was founded by an Englishman of the name of Frenshman, who arrived in Russia in 1581. He is reported to have brought with him an immense quantity of drugs; but it was some time before the natives understood the necessity of having recourse to medicine. The high price at which drugs continue to be sold in Russia would almost be proof sufficient that the *aptekas* were established by one of our countrymen; for, if apothecary's gain be synonymous with exorbitant charge in England, it is equally so in Russia. There is no country in which medicines are so highly charged; indeed, the price is almost double what it is in England. The apothecary's charge in Great Britain is not supposed to be in relation to the cost of the material; the value of his prescription is embodied in his draught, and is the means of his remuneration for his time and talents. The matter is very different in Russia, where the apothecary is the compounder only, and should be satisfied with a fair profit upon the material, as the prescription has already been paid for; whereas, the prices he pleases to put upon it allows of no such consideration on his part. It is true that there is a tariff for the price of medicines, to which he is compelled to adhere; but this is excessively high, and not regulated by the current prices of the drugs imported into the empire. The proprietors of these *aptekas* are almost all Germans.

The regulations, which were promulgated by the court physician, Dr. Blumentrost, in the time of Peter the Great, have, with very slight alterations, been handed down to the present time, and many of these are very excellent in their kind. To prevent mistakes arising from an imperfect knowledge of the Latin language, it was ordered that all prescriptions should be translated into Russian, and deposited in the chancery. The name of the physician and of the patient, together with the date of the day and month, were also registered in a book. The necessity of translating the prescription is now abandoned, but all the recipes are deposited in a drawer, and are not allowed to be given back; notwithstanding that each is copied into a daybook, which is subjected to the inspection of proper authorities, who pay regular visits to the *aptekas* for the purpose of examining the nature of the recipes. Not only are the original prescriptions not allowed to be returned, but a repetition of the same medicine cannot be procured without the physician's signature. A copy only is permitted to be issued from the *apteka*. From the same conservative principles, wholesale dealers in drugs are not allowed to sell them in small quantities. No medicine is allowed to be dispensed without being sealed with the private seal of the owner of the *apteka*, or with the seal of his establishment; for each shop is licensed under some specific name, generally taken from the name of the street in which it is situated; and the number of these is limited. This limitation in the number dates also from a remote period, and proceeded from good intentions; for it was asserted that the number of *aptekas* should be in a ratio with the demand for the medicines, and that, on the one hand, there should be a sufficient competition to prevent the public from being overcharged, and, on the other, not so great a supply as to allow the drugs to remain too long on hand, and be spoiled by age.

It is difficult to legislate in such matters; but the practitioner in Petersburg will find the advantage of sending his prescriptions to the *aptekas* which are in vogue, for the same recipe prepared in a frequented shop, or in one not much frequented, may show two very different things.

If poisons are prescribed in any dangerous quantity, the physician is compelled to sign his name in the *poison-book*, and state for what purpose he has prescribed the poison.

When these establishments were first instituted, they were all under the direction of an officer of state, who was styled the *Apteka Bojar*. They are now under the superintendence of a Chancery (*Physicant*), which is a court of appeal and punishment. If a physician can prove that any mistake has been committed in the preparation of his recipe, or that the drugs are not of good quality, it is the apothecary who suffers. If he can prove that the physician has made a mistake in the writing of the prescription, the apothecary is at least absolved, unless he magnanimously consent to take the blame upon himself. If the shop-boys are in fault, they are subjected to corporal castigation.

The last class is the *Tsirulnik*, or barber surgeon, and is a numerous and thriving brotherhood. It falls to their lot to bleed, cup, draw teeth, apply leeches, and perform other little jobs of minor consequence. They are well paid for their trouble: five roubles, or 3s. 6d., is the common fee for their operations, and they are in great request.

There are no distinct aurists; aural surgery forming part of the practice of the ordinary surgeons. There are likewise but few oculists who devote their whole time to the diseases of the eye. Many physicians and surgeons include the treatment of these diseases in their general practice.

Dentists abound in every street, and their profession is perfectly distinct, and not within the pale of the medical faculty. There are no distinct chiropodists in Russia.

II. REMUNERATION OF THE MEDICAL PROFESSION.

This subject allows of several divisions; viz. the pay of medical officers serving under government, either in the army or navy, in civil institutions, and in the universities; and the remuneration of private practitioners.

In regard to the remuneration of the private practitioners, it may be summed up in a few words,—it is almost optional with the patient. He pays in a ratio with his

means, with his liberality, or with the estimation in which his attending physician held by the court or by the public. In this respect custom has not fixed any regular fee; but the law obliges a medical man to attend any patient who demands his services, for which the practitioner can claim a fee of five rubles (3s. 6d.) per visit. This is an extreme law, which however has, within my knowledge, lately been enforced. In most instances, private attendance is paid for at the termination of the case. The payment is often in the shape of presents, as snuff-boxes, diamond rings, and plays of various kinds. It is by many considered not quite delicate to offer a physician money, though few would consider themselves aggrieved by this species of remuneration.

The more common mode of procedure is the following:—A nobleman's family is committed to the care of a physician, who receives annually about 50*l.* for his attendance upon the superior members; while the servants, and the whole of the domestic department, are committed to a practitioner of less eminence, who is styled *house doctor*, and receives about a fourth of this sum. It is incumbent upon them both to be at the daily call of the persons committed to their care, and, as the fee is the same for attendance under all circumstances, they are generally well employed in their respective vocations. In cases of severe illness, (if any of the nobles are in such predicament,) the opinion of those whose constant attendance should warrant the conclusion that they are conversant with the constitutions of their patients is little attended to. Consultation is crowded upon consultation, and the family physician is merely a spectator in the scene. To these consultations, however, he will not much object, for the responsibility will be thereby divided. The consulting physician is paid at the rate of a guinea* or upwards per visit, by those at least who are in affluent circumstances. But there is all possible gradations as regards the scale of remuneration; generally speaking, however, the revenues of the first physicians in Russia are much lower than those of the same class in England.

Of all classes of the profession, accoucheurs are the most liberally remunerated, and they enjoy an advantage over all their colleagues, viz. that, by a species of habit, almost equal to law, they receive their fee when the patient leaves her chamber. Fifty pounds is the usual remuneration with the higher classes for an attendance which is in most cases nominal; for the accoucheur is in an adjoining room, and is never required to attend except in cases of danger or difficulty. All the attendance is intrusted to midwives, when none is in reality required. This fee also admits of great fluctuation, but an accoucheur of standing and reputation will not receive less than 10*l.* under most circumstances.

Where midwives are employed, it is usual for them to receive from 2*l.* to 5*l.* for their attendance, even from the mercantile classes, and much more from the nobility. The system adopted is frequently unfair to the regular medical attendant. He is often requested to be within call, but, unless there is danger, and the midwife demands his assistance, he receives no remuneration for the loss of his time or sleep. If he be called to the bedside, then he is entitled to the full fee; but this places him in the situation of being responsible for all the bad cases, and deprives him of the counterbalancing advantages of all the ordinary ones. Among the middle classes of society, these attendances are stipulated for in the annual salary, which seldom exceeds 14*l.* sterling.

As regards surgical operations, I have no information which I can venture to give as authentic upon this subject. All those of a minor order are not paid for separately from the annual stipend. I am inclined to believe that such operations as lithotomy, amputation, &c., when successfully performed, would be requited with a liberal hand by the higher classes.

The pay of medical men in government employ, whether civil or military, is upon too low a scale to ensure to the individuals even the necessities of life. In the hospital establishments, the head physician receives only Ro. 1500, or about 65*l.* sterling per annum, with lodgings upon the premises, and the usual perquisites of fuel and candles. Such remuneration can ill requite the time which he is obliged to devote to

* Twenty-five roubles.

ies; and were it not that, in general, a hospital physician has private practice, hed to the court, and probably is a professor in the university, such pay would tittle him to any respect or consideration. The visiting physicians, who act his directions, have not the advantages which he enjoys of gratuitous lodgings, the other perquisites; and they receive Ro. 800, or about half the sum of the r. The service which they perform for this salary is a great demand upon their

hospital mates (Felschers) receive nothing worthy of note; they are lodged and d in the hospitals.

1 respect to the manner in which professional services in the universities are rated, some new regulations have just been issued. The salaries of all the ors are derived entirely from the crown; the students contributing nothing to intenance of the teachers. Their education is wholly at the expense of govern-

The following list of salaries, for the three principal universities, appears offi- a the journals, dated 24th August, 1835.

	St. Petersburg.	Moscow.	Harkoff:
Ordinary professor,	Ro. 5,500 —	Ro. 5,500 —	Ro. 4,500
Extraordinary ditto,	3,800 —	3,900 —	3,400
Assistant ditto,	2,800 —	2,800 —	2,300
Reader,	. . . . .	1,800 —	1,600
Demonstrator,	. . . . .	2,500 —	2,000
Assistant,	. . . . .	1,200 —	1,000

offessors enjoy the privilege of importing, free of custom-house dues, all foreign lets and journals which are published abroad upon those subjects which they in the universities, and all such books are not under the control of the cen-

re has been but little variation in the payment of medical men employed in ment service since the year 1723, when the salary of those attached to the court follows:

he Archiater, or Præses,*	Ro. 3,000 silver	=	Ro. 12,000
ne body physician,	1,200	=	4,800
wo ditto,	800	=	3,200
urgeon, body,	600	=	2,400
rofessor, Anatomy,	800	=	3,200
Natural history,	500	=	2,000
court physician,	700	=	2,800
own physician,	400	=	1,600
surgeon,	150	=	600

difficult to ascertain precisely what is the value of situations about court in the t day. There are many perquisites attached to such situations, and their an never be ascertained. The physicians in immediate attendance upon the al family are supposed to receive from ten to twelve thousand roubles per , (500*l*.)

pay of the medical military staff is the same with that of the hospital civil staff ries, according to rank, from 600 to 1,500 roubles per annum. This pay is mpled in active service, when out of the country.

re is a distinct class of court physicians. They perform active services alter- and are obliged to remain the whole twenty-four hours in the palace. Each e is called upon to serve about every fifth day. They receive 1,200 rubles (50 s) per annum as salary. They have no other duty than that which accident and ncy procure them, and are upon the spot to attend until other physicians arrive. ysician attached to the imperial family always resides in the palace which they

* President of the Academy of Medicine, and head of the faculty.

III. MEDICAL SCHOOLS IN RUSSIA.

There are three principal universities in Russia proper, those of Moscow, Harkoff and St. Petersburg; and each of these universities has a large school of medicine. Those of Moscow and St. Petersburg are the most considerable, but there is still good school at Harkoff, situated in the southern part of the empire, and destined for the convenience of the natives of the conquered provinces on the Asiatic border. Each university, which has a faculty of medicine, has also an institute of medicine of the same kind: the students who attend the latter are educated at the expense of government, and are subsequently obliged to serve six years, at least, in the civil or military service. The number of these students is fixed at one hundred for Moscow, and forty for Harkoff. This is, in reality, a kind of medical conscription.

On the present occasion I shall confine my observations to the chief medical school of the empire, that of St. Petersburg.

Although the first rudiments of a medical school in St. Petersburg are to be found in the establishment of the naval hospital, by Peter the Great, in the year 1715, yet the merit of organizing a medical faculty is due to Catherine the Second. In 1764, the Empress founded a medical college, which, with but few alterations from its first institution, is still recognized in the *Medico-Chirurgical Academy of St. Petersburg*. To the jurisdiction of this institution were subjected then, as at present, all the medical institutions, and all medical practitioners, with the exception of court physicians, in the empire. It was originally under the superintendence of a president, eight councillors, and a director general; but, in the year 1788, it was put under the control of a president, four physicians, and a secretary for the foreign department. These individuals appertained to the sixth class of nobility. There was also a head surgeon, of the seventh class, an operating surgeon, a surgeon's assistant, and a superintendent of the seventh class. The Academy formed a board of examination and control. All medical practitioners were subjected to the former, in order to obtain a licence to practise, and no other degree, either from Russian or foreign universities, exempted them from this ordeal. The Academy had the power of conferring medical rank, of fixing the rates of medical remuneration, and of assigning to the medical men employed by government their different posts throughout the empire. It exercised the privileges of conferring rewards and punishments, and of regulating the *lazarettos* and medical schools. It conferred the degree of doctor in medicine; thus assuming or usurping the privilege of an university. In the year 1789, a Russian *Pharmacopœia* was published by the Academy, which was at that period a supreme medical court.

Such was the institution as it was originally founded by Catherine; and the late *ukass*, published in 1835, regarding the same Academy, will prove that but little difference exists in its organization in the present day.

"The Medico-Chirurgical Academy of St. Petersburg (says this document,) enjoys the same privileges as the universities of the empire, and confers degrees in medicine, surgery, and in the veterinary art. It elects corresponding members for the diffusion of knowledge in the distant parts of the empire. It has its own censor, who inspects all manuscripts and publications of the members, and authorizes the translations of foreign medical works into the Russian language."

The Academy, as now constituted, consists of—

1. The president;
2. Two ordinary and two extraordinary professors;
3. Several assistants, viz. demonstrators, operators, manipulators, &c.
4. A general inspector;
5. A councillor, who presides over the supreme court of the Academy, with his secretaries.

The meetings of the Academy are styled *conferences*, and are attended by the medical professors only. In case an ordinary professor is prevented from attending, an extraordinary professor is allowed to act as a substitute. No official business can be transacted without the actual attendance of half the members. In cases of dis-

ment among the professors upon subjects of importance, the case is usually referred to the decision of the minister of the interior. The classes are regulated by the Senate (Senatus Academicus), and the programmes of the different courses are determined by the respective professors. No one can be appointed professor who has not previously obtained the degree of doctor in medicine and surgery, unless some extraordinary circumstances, and who has conferred some signal benefit on the faculty, exempted from the necessity of these qualifications. The lectures are delivered by the professors in the theatres of the Academy on the following subjects:

Natural philosophy and physics.

Natural history; comprising zoology, botany, mineralogy.

Chemistry, general and pharmaceutic.

Anatomy; combining a general view of comparative anatomy and experimental physiology.

Physiology.

General pathology.

Practical and theoretical pharmacy.

Materia medica, toxicology, and art of prescribing.

General therapeutics.

Surgery; including diseases and operations on the eye.

Midwifery; including diseases of women and children.

Medical jurisprudence.

Clinical medicine, surgery, and midwifery.

Literature; comprising the history of medicine, criticisms on the ancients, translations in the Latin language, and dissertations on German and Latin classics.

General view of veterinary surgery, and minute description of epizootic diseases.

The lectures are delivered in the Russian and Latin languages, but the clinical lectures must be delivered in the Latin tongue. The lectures are said to be given, and are of two hours' duration; but, subtracting all the church holidays and fêtes days, not more than three lectures a week can be considered as the average. With all the advantages which the Academy offers to the medical student, (and, ethically speaking, it must be allowed to be complete in all its parts,) it is singularly few Russian subjects arrive at the higher honours of their profession; almost all the professors and practitioners of eminence being graduates of foreign universities.

The following is a list of the present professors of the Academy, with the respective subjects taught by them.

Professor Nechaeff,	Mathematics, Physics, Chemistry.
Gorianinoff,	Zoology, Mineralogy, Botany.
Bouialsky,	Physiological and Pathological Anatomy.
Vellanski,	Physiology, General Pathology.
Netubin,	Pharmacy.
Spasky,	General Therapeutics, Pharmacology, Art of Prescribing.
Ilatusky,	Special Therapeutics.
Savinka,	General and Special Surgery.
Seidlitz,	Clinical Medicine.
Saloman,	Diseases of the Eye.
Hotoffsky,	Midwifery, Diseases of Women and Children.
Gromoff,	Medical Jurisprudence, Hygiène.
Pelekin,	Medical Literature.

Assistant Professors, eight in number, repeat the lectures of the ordinary professors mentioned, and are the demonstrators of practical botany, chemistry, anatomy, physiology, surgery, &c.

Adjunct Professors.

Professor Sagoisky,	Institutes of Medicine.
Schipusiushky,	Diseases of the Skin.
Yaktisky,	Application of Bandages, &c.

Veterinary Professors.

Professor Lukin, . Epizootic Diseases, and general Study of Veterinary Surgery
 Sevetodoff, Comparative Anatomy and Physiology.
 Prosoroff, Examination of Domestic Cattle.

Upon the whole, it may be safely averred that the Russian medical student has every facility afforded him for prosecuting his studies to advantage, and for making himself master of his profession, as far as this can be accomplished by academical education.

The lectures commence on the 1st of September, and last till the 1st of July: hence the course is of ten months' duration. The examinations occupy the two months of vacation.

Five years' attendance on the lectures above specified entitle the student to examination for the degree of doctor in medicine. Four years' study are required from the veterinary student; three years from the apothecary.

There are three kinds of examinations continually in operation at the Imperial Academy:

1. The general public examinations of the students who have completed their studies. These take place during the two months' vacation.

2. Private examinations of individuals who apply for higher degrees, or of those who have been referred to their studies after the public examinations.

3. Examinations of foreigners, who apply for the licence of the Academy to practise any or every branch of medicine. Examination of graduates who aspire to higher honours.

Each professor is obliged to examine the candidate in that branch of medicine which he himself teaches; and of the capability of the student he makes report to the *Senatus Academicus*. All the professors present may question the candidate upon any subject, whether belonging to their own class or not. It is necessary that two professors and a secretary be present at each examination.

Russians are examined in the Russian and Latin languages. Foreigners have the choice of Latin, French, or English.

A preparatory classical education is demanded previously to the admission of students to the medical classes.

The medical majority is twenty-four years of age; and the degree of M.D. is not conferred before this period.

Beside these examinations for specific purposes, as degrees, &c., there is a general examination of all the students; an examination of probation, to ascertain the progress which they may have made in their studies. These are the examinations which take place after the termination of the lectures. It is from the result of this experiment that the subsequent division of the students into *classes of merit* takes place.

The report of the examining professors is laid before the *Senatus Academicus*, and the report is generally respected by the Conference, and serves for the arrangement of the four subsequent degrees; but, superior to this testimony of medical industry and capability of the student, as furnished by the professors, is the consideration which the Conference gives to the *moral conduct* of individuals, in preference to their acquirements in learning.

There are four degrees of comparison in the St. Petersburg Academy. The first is a degree less than the positive,—*goodish, good, better, best*. Those who have passed their examinations with great credit are rewarded by medals, and by certificates of merit, signed by the *Senatus Academicus*.

Those who come under the first denomination are referred to their studies for another year, unless they are satisfied with the title which the fourth class affords them; for, as regards the class, this order must be inverted: the *goodish* is the last in rank, but first in position. Under this denomination are included those who have been prevented by illness from attending to their studies.

Those who are ranked in the third class, *good*, must remain a year longer in that class, to entitle them for promotion to the second class, *better*. These students are, however, generally satisfied with their honours, and for the most part are presented to the minister of the interior for service in government establishments.

is guilty of improprieties of conduct are punished at the discretion of the Academy; although a report must be made to the minister of the

ment students—viz. such as are fed, clothed, and educated at government—are compelled to serve gratuitously in different establishments for a certain of years, regulated by the length of time they have been at the charge of nt. Three years' service is demanded for one, five for two, and six for s' gratuitous education at the expense of government.

aminations of candidates for degrees is partly oral and partly in writing. classed in the first and second order of students, as regards merit, are pro- the rank of doctors of the first and second class, if they have obtained their th credit. Those of the third class in merit may, by remaining a year longer ademy, be promoted to the second class of doctors, after passing their ons. If they do not aspire to this honour, they may take a degree in the s of doctors, but are not doctors of medicine, unless, by giving proofs of alents in the exercise of their profession, they become entitled to apply for ir.

s passing an examination entitling them to the first rank receive medals and diplomas, granted by the Senatus Academicus.

atus Academicus selects yearly from the students who have passed their on, one or two individuals, who are appointed to serve as supernumeraries in ital for the space of a year. At the end of this probation, they are supplied ls to enable them to travel abroad, and visit foreign universities, for the n of their education, and for the purpose of improving their own institutions. elling fellows are obliged, upon their return home, to serve for the space ears in some large hospital, and are then eligible to be elected professors in my.

ts who have not made such progress in their studies as may allow them to gree in any of the classes, are distributed among the hospitals, bearing the adidates of medicine, for the space of one or more years. During this ey must attend lectures, and act as dressers and assistants to senior officers. eiving certificates of good conduct, and having given sufficient proofs of ent in their studies, they may subsequently be made doctors of the third if willing to submit to another course of examination, may be promoted to d class.

ers, who have studied in other universities, may claim the same privileges students, by submitting to different tests and examinations, and may be the first, second, or third class, as they prove themselves worthy of the : honours. No honours, degrees, or licences from foreign universities rangers from this course of examination. Some few, however, have occa- een exempted, through imperial favour. Foreigners, whose sole object n possessing a licence to practise, generally content themselves with the gree, unless they look forward to professorships or hospital appointments. rds the army or navy, there is no particular plan of education; the students l the same education.

an average, sixty students graduate annually in the St. Petersburg Academy. ese take the degree of doctor in medicine and surgery.

s a class of practitioners who have received permission to practise, by parti- ur, without previous examination; and, as they do not come under any of mical titles, they receive that of *Practicant*.

in the examination of an English candidate, which may serve as a fair sam- nature of the examinations in general. [See *Appendix*.]

edical periodicals are published under the authority of the Academy,—the Journal, which appears at irregular intervals, and the Weekly Gazette of Both of these publications are in the Russian language. The profits arising ale of the military journal are devoted to medical charities, and all medical overnment service are obliged to subscribe to it.

Although the medical school of Moscow is but a branch of the St. Petersburg Academy, yet the university of Moscow has its medical faculty; a privilege which the university of St. Petersburg does not enjoy. The establishment of a medical faculty *per se*, independently of the university, was an innovation of the president, Sir James Wylie.

Besides the establishment for lectures, the St. Petersburg Academy possesses the following collections and institutions:—

1. An extensive Library. 2. A Cabinet of Natural History. 3. A Chemical Laboratory. 4. A Cabinet of Minerals, (very rich.) 5. An Herbarium. 6. A Zoological Cabinet. 7. A Cabinet of Anatomy. 8. A Cabinet of Pathology. 9. A large collection of Models in wax, and of Surgical Instruments, &c. 10. A Dispensary, and Pharmaceutic Laboratory. 11. Clinical Wards for Diseases of the Eye. 12. An Hospital for the Inmates of the Academy. 13. A Veterinary Hospital.

Foreign journals, from all parts of Europe, are received by the secretary, who makes such extracts from them as he deems necessary, and these, translated into Russian, are inserted in the two periodical journals before mentioned.

IV. HOSPITALS IN RUSSIA.

Although few countries can boast of finer institutions for the sick and infirm than Russia in the present day, it has nevertheless been the work of nearly two centuries to bring them to their actual state of perfection. Commenced, as we have seen, by a private individual, whose example was soon followed by government, they only began to have a character of importance under Peter the Great. But it is with these as with all public institutions,—it is the slow and improving hand of time alone which can rectify what is amiss, and consolidate what is good: hence, as the method of treating diseases has varied with the acquirement of knowledge, so has the hospital patient reaped the fruits of such advantages as have been offered by the progress of medical improvements.

As regards the external appearance of the hospitals in Moscow and St. Petersburg, they are splendid in the extreme, resembling more the palaces of princes than the abodes of the sick. But it is of their discipline we have to speak, and many of the regulations of these institutions are worthy of imitation by similar establishments in other parts of Europe. One great advantage which they possess over charitable institutions of a similar kind in England, is the *daily* admission of patients; the vacant beds being immediately occupied by the most urgent cases.

All applicants are not admitted indiscriminately into the General Hospitals; for there are others devoted to the reception of particular diseases, as eruptive fevers, venereal diseases, &c.; and persons labouring under diseases which are considered incurable are not treated in the hospitals, but are admitted into almshouses.

The time of admission is from nine to twelve o'clock, when the patients must present themselves in the receiving room. Here they are inspected by the house-physician, who selects such cases as appear to him the most interesting. This selection, however, is not final, for it must be approved of by the superintendent. When the choice is confirmed, the patient is immediately conducted into a bath-room, where he is well washed; and all his clothes are taken from him, and are deposited in a wardrobe, to be restored to him when he quits the hospital. He is immediately supplied with other garments,—viz. a linen shirt, a pair of drawers, stockings, a nightcap, a pocket handkerchief, a pair of slippers, and a loose morning gown of woollen or linen, according to the season. Thus attired, he is conducted to his bed, and is soon visited by the physician of the division in which he is placed. His bedstead is of iron, furnished with two mattresses, a pair of linen sheets, and a blanket. He quits his loose gown when he gets into bed; and this is rolled up like a soldier's cloak, and placed at the foot of the bedstead upon a little stool. By the side of his bed is a small table with a drawer, which contains his spoon, his knife, his salt, &c.

Over the patient's head is suspended a sheet of paper, with the name, the age, the owner of the individual, (if a slave,) the day of admission, the duration and name of the disease. The sheet is divided longitudinally into four divisions. The

first column shows the *decursus morbi*, under which head the physician states daily, in Latin, the progress of the disease, the different changes which have occurred, and the effects of remedies. The second column contains the prescriptions of the medicines which have been administered internally. The third shows the external applications which have been employed. The fourth prescribes the diet. This paper remains continually at the bed-head, but its contents are copied into a book, which must be countersigned by the superintendent before the apothecary is allowed to make up the prescriptions.

According to the urgency of the symptoms, the patient is visited once or twice daily; and, as a resident medical man is always within call, so he is never without help in need.

The linen is changed frequently; it being left to the judgment of the physician to have it changed as often as he deems it necessary. The food is of the best quality, and the quantity is regulated by the medical officer.

The medicine is administered by the *felshers*, whose duty it is to give it at the times prescribed, and to oblige the patients to swallow it; not leaving it to their option to accept or reject it.

When desirous to leave the hospital, the patient is furnished with an order authorizing his dismissal, either because he no longer requires medical assistance, or because he finds the confinement irksome. He can leave at all times, upon applying for his release; but, if he quit before his cure be effected, or contrary to the advice of the medical officer, he is not again received.

As regards the internal arrangement of the hospitals, there is no cause for complaint. The wards are spacious and lofty, the beds not too much crowded together, and cleanliness is carried to a point almost deserving of ridicule. The different offices attached to the establishment,—as the bakehouse, kitchen, laundry, pharmacy,—are all perfect in their kind; and, as they are liable to be visited by the authorities at all hours, so there is a moral necessity for their good administration. The baths are very superior, and of various kinds. There are baths for mere ablution, vapour baths, and simple and medicated baths of all descriptions, always in readiness.

The number of medical officers attached to each hospital will naturally vary with the number of patients therein contained; but each hospital has its superintendent physician, whose duty it is to approve of the choice made of the patients before they are admitted; to sign the order for the medicines delivered out of the Pharmacy, and to perform various duties regarding the internal police of the establishment.

There are always from two to three visiting physicians, who regularly visit the patients once, and often twice a day; and there is a physician always residing on the premises, ready for any emergency. Each medical officer has his attendant *felsher*, who accompanies him in his rounds, and receives his orders for the day. The men are attended by nurses of their own sex, and the women by theirs. They are divided into night and day watchers, and there are others appointed to watch the watchmen. There is also a matron.

The wards are fumigated daily by burning vinegar upon hot bricks, upon which are sprinkled some aromatic herbs. Water-closets, a luxury unknown to the nobility twenty years ago, are now furnished to every hospital.

The most decided defect in all these institutions is a thorough disregard to ventilation; for fumigation is not ventilation, nor is the disguising a disagreeable smell by the overpowering influence of a more supportable scent, a compensation for the want of fresh air. But the habits and customs of a people, influenced or formed perhaps, as they have been, by the rigour of their climate, must be taken into consideration; and we cannot expect to find in a hospital what exists in no other habitation. The Russians, of all people in the world, most dread the effects of cold air admitted into their houses. They brave the external frost and snow with impunity; but, when once the Russian takes off his furs, and enters his house, he trembles at the idea of an open window. He can only live in an atmosphere of a certain temperature, and must be guarded from the influence of every breath of air. He consults his thermometer, and, unless he finds it from 15° to 17° of Reaumur, (65° to 70° Fahr.,) he feels chilled and uncomfortable. "Heat breaks no bones" is a Russian proverb, quoted

as an apology for a suffocating atmosphere. The thorough airing of a room by throwing up the sash, and the smell of fresh morning air, so essential to the comforts of an Englishman, have nothing to recommend them to the inhabitants of the North. If this, then, be the case in private houses, can it be supposed that a different system should be adopted in public hospitals? Such an innovation would bring them more into disrepute with the patients than the certainty of being anatomized after death. It would alarm a physician of the Edinburgh Infirmary, who is accustomed to find the windows of his fever-wards open in the month of January, to see his patients stewed in a ward heated to 16° Reaumur. I have conversed upon this subject with some of my countrymen, and they inform me that they have often tried the experiment of admitting fresh air into their patients' rooms; but in vain. It is useless to strive against deep-rooted prejudices in matters which constitute the chief comfort of a people. It is so in health; it is more so in disease: heat they will have, if it is to be procured. In spite of their obstinacy, I have every reason to believe that it is very injurious to them, and that their convalescence is often protracted from this cause alone. I am convinced that this system is productive of a variety of ailments and uncomfortable sensations in those who call themselves in health. Headaches, lethargy, hemorrhoidal affections, are the lot of the most healthy. In a frame still more debilitated by severer diseases, I am certain that the effects of heat are most pernicious. In private practice, I have often found the most beneficial results when I have been able to overcome prejudices, and admit fresh air into the sick room, or remove the patient into a more spacious and better ventilated apartment. It is not often that I have succeeded in my attempts; and nothing is more irksome to a medical man than the feeling that the small means in his power are not turned to the best account, and that, whilst he finds no obstacle to the administration of medicines which are of the most doubtful efficacy, he is often prevented from using such means as are unequivocally advantageous. In cases of scarlatina, a disease so prevalent and so destructive in St. Petersburg, I have had to cope with furs, blankets, warming pans, and 18° of Reaumur; nor have I been able to succeed in my attempts to allow the introduction of a little fresh air, or to administer to the sick a little cooling beverage.

With these and some other trifling exceptions, there are no hospitals in Europe better conducted than those of Russia. Food, clothing, comfortable lodging, humane treatment, and the best medical advice, are at the disposal of the sick. I have myself sent many poor patients to the hospitals; many have gone reluctantly, but never has it occurred to my knowledge that the individual sent has returned with the same prejudices which almost prevented his going into the institution.

There are four kinds of diet prescribed for the sick in the Russian hospitals by the attending physicians. The following is the dietary of the Galitzin hospital, the richest of its kind in Moscow.

The *full diet* is soup containing barley or groats; a pound of beef, (twelve ounces avoirdupois;) half pound of roast meat; two pounds of brown bread, or a pound and a half of white bread. The *ordinary diet* consists of the above, with the exception of the roast meat. The *low diet* consists of a basin of chicken or veal broth, with a portion of fowl, and a pound of white bread. The *extraordinary diet* consists of half a fowl, and a pound of white bread. The *drink* is composed of *kvass* and barley-water. Wine is prescribed, if necessary.

The diet of the great town hospital is thus regulated:

Full diet. Cabbage soup, one pound of beef, with boiled buckwheat, a pound and a half of bread. *Moderate diet.* Soup with groats, a pound and one-eighth of bread. *Low diet.* Veal or chicken broth, a pound of white bread. To this is added, as may be judged proper, the half low diet, consisting of weak broth, fish soup, groats with milk, jelly, &c. According to circumstances, also, fowl, milk, apples, prunes, salted cucumbers, beer, and wine are administered to the sick.

The fasts prescribed by the Russian church are observed by the hospitals, unless under particular circumstances, when it is at the discretion of the medical attendant to forbid the observance. The fast diet consists of a pound and a half of mashed potatoes, turnips, or carrots, half a pound of fish twice a week, half a pound of groats,

three-quarters of a pound of bread, for dinner. For supper, one pound of mashed potatoes, three-quarters of a pound of bread, a pint of kvas,* or beer.

HOSPITALS IN MOSCOW.

How much the utility of hospitals has been appreciated in Russia, is evident from the extent to which they have multiplied. Moscow, which two centuries ago barely reckoned a single institution of this kind, has now to boast of seventy charitable establishments for the relief of the sick poor. Some of them are of minor importance, but some are of gigantic magnitude. They are supported by government, by voluntary contribution, and by private endowment. The following table contains a view of the seven largest hospitals of this city, in the year 1834. It may be well to premise, that the population of Moscow, in 1833, was 333,260.

Names of Hospitals.	Number of Beds.	Number of Patients.		Cures.	Deaths.
		Males.	Females.		
Poor's Hospital	244	1,582	1,549	2,488	441
Paul's	176	1,485	403	1,528	199
Galitzin	145	513	353	736	130
Sheremetief.....	68	468	425	714	116
Catherine	220	1,179	604	1,327	242
Town	450	2,203	881	2,430	503
Military .....	.....	12,256	963	11,542	1,204

An idea may be formed of the expense and general establishment of these hospitals from that of the Galitzin, which is as follows:

Medical establishment:—One superintendent; one physician in chief; one assistant physician; eight physicians in ordinary; one midwife; twenty-four felters, or dressers; one apothecary; one assistant apothecary; one chaplain; ninety male and twelve female nurses.

The annual cost of this hospital is estimated at 180,000 rubles, or 8000*l.* sterling.

Hospital for Diseases of the Eye. This establishment, being supported by voluntary contribution alone, is not upon a very large scale. It contains, however, fifty beds, and has an operating theatre and a consultation room. It is computed that about five hundred patients are admitted annually into the wards, and that from fifteen to sixteen thousand are treated as out-patients. There are, upon an average, three hundred operations performed annually upon the eye; and of these, from fifty to sixty are for cataract.

Orthopædic Institution. This is a private speculation, conducted by Dr. Mandileny. It possesses the advantage of a gymnastic school, which in fine weather is held in a large garden, and in winter in a large hall, heated to a proper temperature. This school is frequented by young persons, for the sake of exercise, as well as by such patients as are supposed likely to benefit from the different kinds of exercises. The bath department is very complete, and is found very serviceable in the treatment of many distortions.

Hospital for the Insane. This was instituted in 1791, but it is not of very considerable extent. The building consists of two stories; each is divided, through its whole length, by a spacious hall, which serves as a dinner-room and a promenade in inclement weather. The bed-rooms, or rather the cells of the patients, are situated on each side. The women are lodged below, the men above.

Upon the whole, this is one of the worst organized establishments in Moscow, and is much inferior to that in St. Petersburg. The space is not sufficient to allow a proper separation of the patients. It is in reality a *hospital*, providing for physical rather than moral ailments, and should be considered as a section of an establishment rather than a complete institution.

* The drink of the common people. It is made with rye-flower and rye-malt, fermented with yeast.

The food is not so liberally distributed as in other hospitals. The full diet consists of two pounds of bread, two-thirds of a pound of meat, with boiled buckwheat or barley. The drink is kvas. The clothing is good and appropriate. There are, upon an average, 150 patients in the hospital.

The Foundling Hospital. It is not within the scope of these observations to enter into the disputes regarding the utility or impropriety of foundling hospitals; but, in presenting a sketch of the hospitals in general, as they are at present conducted in Russia, it is necessary to include these in the list. Moscow boasts of the finest institution of this kind in Europe. It is not used as a receptacle for illegitimate children only, but is open to the poorer classes who are not able to maintain their offspring. In this respect it differs from many institutions in Europe, and is designated the Imperial House of Education.

It was founded by the Empress Catherine in 1762, and was designated House of Education, from its being open not merely to the children found in the box at the gate, but because mothers, unable from poverty to maintain their children, are allowed to enter to nurse their own offspring in the institution, and are allowed a nurse's salary during the time they remain there. This circumstance was probably unknown to the philanthropist Allen, who, when this noble edifice was pointed out to him by the late Emperor, instead of expressing admiration, recommended its immediate demolition.

The external appearance of the building is magnificent. It is situated upon the banks of the Moskwa, and is approached at one time by a long avenue of trees, and a large garden is attached to it. The whole establishment is upon a scale of great magnificence; the wards are lofty and spacious, and all the offices are commodious in the extreme. Neatness and cleanliness prevail in every department. The hospital contains three thousand inmates of all ages. Every foundling has its little cradle placed by its nurse's bedside. The mother has not only comforts but luxuries afforded her, and consequently few are the beds which are allowed to remain long vacant. Women of the very refuse of the people, half starved and in rags, find food and raiment, and pecuniary remuneration, for the bare trouble of solicitation. The building is divided into a variety of wards, to suit the different ages of the children, and the system of education which is adopted at different periods. The ground-floor is occupied by the offices and the reception-room for the infants. There is a chapel for baptism, which ceremony is performed as soon as they are admitted. They are received at all hours, and none are refused except the children *des officiers supérieurs*. The children of private soldiers are admitted.

Seven thousand children are received annually, upon the average, in this institution. A ticket is attached to the child's neck upon admission, and a duplicate is given to the person who leaves the infant, so that it may be reclaimed afterwards by the parents, if they request it.

According to the different talents which these children manifest, they are divided into different classes for education. Some are taught the arts, sciences, and living languages, and are subsequently sent to the universities, where they take degrees in medicine, or become tutors and teachers. The females are educated for governesses, and serve as such in families who reside in the interior of the empire; but a governess educated in the Foundling Hospital is not allowed to reside in St. Petersburg or Moscow in that capacity. The children who do not aspire by their talents to such high situations, are taught trades, and are apprenticed to tailors and shoemakers, milliners and mantua-makers. Such as are incapable of any application are maintained in a separate establishment, at the expense of the hospital.

This charity also extends its bounties to those who apply for assistance to nurse their children at home, in preference to placing them in the hospital. Many of the children are sent into the country after having remained a certain time in the hospital, and are brought up by peasants, who, if they have no children of their own, are allowed to adopt them. At the age of eighteen, the boys are transported to the villages which belong to the crown, and are employed as labourers. A colony of these children has been established in the government of Smolensko. When the educator

of such as have been brought up in the institution is completed, a passport is given them as free subjects, and they can never become serfs under any pretext.

Two infirmaries are attached to the institution; one containing 128 beds for the children, and one of twenty beds for the attendants when ill. There is also a hospital of forty-four beds, established for what a witty author has styled the *second chances*. Women are allowed to find succour here without divulging their names: no questions are asked. Midwifery is taught females in this institution.

There is a country residence belonging to the establishment, where the children are sent in the summer, for the benefit of the air.

Although 7,000 children are said to be admitted annually, still the number of living foundlings, in Moscow and its environs, in 1832, amounted only to 21,287, out of all who had in a long series of years been received into the establishment.

Sixteen physicians are attached to the Foundling Hospital.

HOSPITALS IN ST. PETERSBURG.

The following table, besides the names and extent of the principal hospitals of St. Petersburg, exhibits the number of patients admitted during the year 1835, and the general result of their diseases.

Hospital.	Number of Beds.	Patients admitted.		Died.	
		Males.	Females.	Males.	Females.
1. Aboukoff	454	3,424	1,425	515	174
2. Mary Magdalene.....	160	1,426	416	273	73
3. Marie { In-Patients ...	330	2,537	1,125	742	297
3. Marie { Out-Patients...		33,007	14,937	cured 21,878	cured 6,992
4. Imperial Guard Lazaret			8,498		304
5. Military Hospitals			24,554		1,414

Hospitals in Odessa.

Military Hospital.	Remaining.		Admitted.		Cured.		Died.		Remaining.	
1834.....	198		1,590		1,538		86		164	
1835.....	164		935		905		57		137	
Civil Hospital.	Males.	Females	M.	F.	M.	F.	M.	F.	M.	F.
1834	217	137	1,782	646	1,552	594	236	95	211	94
1835.....	211	94	1,693	478	1,483	413	205	67	206	92

Archangel Hospital.

Beds, 480	Remaining.	Admitted.	Cured.	Died.	Remaining.
1833.....	208	2,812	2,810	108	102
1834.....	102				

Cronstadt Military and Naval Hospital.

Beds, ordinary No. 2000.*	Remaining.	Admitted.	Cured.	Died.	Remaining
1834.....	1,715	24,834	23,712	1,334	1,503
1835.....	1,503				

* By converting adjoining buildings into lazarets, the number of beds may be increased to 3,000, as occurs often in the spring.

APPENDIX.

Examination of a Medical Student, before the Imperial Medico-Chirurgical Academy of St. Petersburg.

Professor of Anatomy and Surgery.

What is the structure of the heart?

stomach?

eye?

What are the different dislocations of the hip-joint? How are they distinguished, and what are the modes of reducing each kind?

What is the structure of the testicle? Describe the operation of extirpation of the testicle.

Professor of the Practice of Physic.

What are the symptoms and nature of epilepsy? What are the different supposed causes of its production? What are the most approved methods of treatment? What are the symptoms of delirium tremens? What influence has intoxication upon the functions of the brain?

Describe the symptoms of ophthalmia, and relate the history of the Egyptian ophthalmia.

Professor of Physiology.

The student had to write a Latin essay on sleep and wakefulness, in the presence of the professor.

Professor of Chemistry and Pharmacy.

What is the composition of the atmosphere? Give some practical illustration of the expansion of air by caloric. What is the composition of the blue pill?

Professor of Physics.

Describe the principles upon which the barometer and thermometer are constructed.

Professor of Botany.

What is the class and order of the digitalis? What are its medical properties?

Professor of Natural History.

From whence is castor derived? Describe the animal. What is rock salt?

Professor of Midwifery.

Describe the membranes of the fetus in utero, and give Dr. Hunter's account of the same.

These examinations occupied five successive sittings, each of about half an hour's duration.

One peculiarity exists in the examinations. It is customary to question a student upon some celebrated physician's opinions upon particular subjects. Thus, a professor demands what is Sir Astley Cooper's opinion regarding the union of bones fractured within the capsular ligament? Does the neck of the thigh-bone, when so fractured, ever unite? What was the late Dr. Frank's (of Vienna,) favorite remedy in such or such diseases? What does Hufeland employ as a favorite remedy for ———? These questions are frequently put, and puzzle foreign students: they are more applicable to students of their own universities, because the works of these men are put into their hands as class-books.

As the licence granted to those who have passed such an examination as the preceding allows them to practise generally, few comparatively take the degree of M.D.

Those who are examined previous to entering the military service are obliged to perform operations upon the dead subject in the theatre. An English student, who had passed all his previous examinations with eclat, was desired to amputate a leg: he commenced his incision without previously applying the tourniquet. He was remanded for six months, and passed afterwards.

G. L.

St. Petersburg; December, 1836.

* A most common disease in Russia.

PROVINCIAL MEDICAL AND SURGICAL ASSOCIATION.

WE are happy to observe that this excellent Society continues to grow in extent and estimation. In addition to the Branches mentioned in our last, a flourishing one has been recently established in Somersetshire, under the name of *The Wells, Idgewater, and Taunton Branch*. The *Bath District Branch* held its first sectional meeting on Thursday, the 1st of June, at the Bath Institution, under the presidency of Wm. Tudor, Esq. George Norman, Esq. was chosen president for the ensuing year. The number of members of this Branch is at present upwards of sixty.

The *Southern District Branch* held its first annual meeting, at Winchester, on Tuesday, the 8th of June, under the presidency of Dr. Crawford. Dr. FOWLER, of Salisbury, was chosen president for the ensuing year; and the next meeting was fixed to take place at Salisbury. At this meeting it was resolved to grant a prize of books, value 20*l.*, for the best Medical Essay on a given subject; to be contested for by the members of the Branch, and to be awarded at the annual meeting in 1839. The number of members is at present one hundred.

The anniversary meeting of the Parent Association takes place at Cheltenham, on the 19th and 20th days of July, under the presidency of Dr. Boisrangan. Dr. Bardsley of Manchester delivers the Anniversary Address on the 20th, at twelve. The total number of members of the Association now exceeds one thousand.

ON HEPATIC ABSCESS IN INDIA. BY W. GEDDES, ESQ.

[WE have received the following letter in reference to an Article in our last Number on the Diseases of India; and, as it contains an explanation of some importance on a point where, it seems, we had mistaken the author's meaning, we have much pleasure in giving it publicity. We may take this opportunity of again calling the attention of our readers to Mr. Geddes's very excellent paper, on a subject of much interest to physiologists in all climates.]

To the Editors of the British and Foreign Medical Review.

Gentlemen: In the review of my friend, the late Mr. Twining's Clinical Illustrations, contained in your last Number, allusion has been made, in favorable terms, to my essay of mine on Hepatic Abscess, published in the sixth volume of the Transactions of the Medical and Physical Society of Calcutta. There are many typographical errors, or perhaps some obscurity of expression in that paper, and to these I refer a misconception which seems to have arisen in the Reviewer's mind calculated to shake confidence, or that of your readers, in the general accuracy of the facts therein related. It is stated in the review, as the result of my observations, that of twenty-eight instances wherein abscess of the liver had been found on dissection, pain had existed in thirteen, dysentery in ten, and pyrexia in but five cases. The reviewer seems to have conceived this statement to refer to the presence, or otherwise, of these disorders during the whole progress of the illness; but it is meant to apply, only, to the general aspect under which the hepatic abscess at first showed itself, or, in other words, the most conspicuous manifestation of disease at the earliest period at which the abscess was considered to have existed. In the further progress of the case to its fatal termination, the predominating symptom continued, as in the commencement, to be pyrexia, pain, or dysenteric disorder; but the first of these affections was distinguished from the others, inasmuch as it almost always accompanied, in some shape or degree, one or the other of the two latter, being, under some varieties, in proportion to their severity; while, as has been alluded to in the review, where the dysenteric symptoms become the predominating affection, there was little pain of side, and, on the other hand, where pain was urgent, there was not much annoyance from affection of the bowels. I feel much gratified by your calling the attention of your readers to the facts contained in the essay alluded to, presenting as they do a different view of hepatitis when it proves fatal, from what is generally entertained in this country. I am the more anxious, therefore, that nothing of a "startling" nature should appear to have found its way into that production, and this, I trust, will be a sufficient excuse for my troubling you with the above explanation. I am, Gentlemen, yours very obediently,

W. GEDDES,
Rockhouse, Elgin; May 13, 1837.

Late Surgeon of the Madras European Regiment.

GENERAL REGISTRATION OF DISEASES.

[We have much pleasure in giving a place in our journal to the following document, the publication of which does great credit to the authorities from whom it comes. We think there can be but one opinion among all intelligent members of the profession, of the very great importance of the object sought to be attained by the official registration of fatal diseases; and we trust that every physician and surgeon in the kingdom will be found ready and willing to contribute his aid towards its accomplishment.]

We, the undersigned, President of the Royal College of Physicians, President of the Royal College of Surgeons, and Master of the Worshipful Society of Apothecaries, having authority from the several bodies whom we represent, do resolve to fulfil the intentions of the Legislature in procuring a better registration of the causes of death, being convinced that such an improved registration cannot fail to lead to a more accurate statistical account of the prevalence of particular diseases from time to time.

We pledge ourselves, therefore, to give in every instance which may fall under our care, an authentic name of the fatal disease.

And we entreat all authorized practitioners throughout the country to follow our example, and adopt the same practice, and so assist in establishing a better registration in future throughout England; for which purpose we invite them to attend to the sub-joined explanatory statement, in which they will set forth the provisions of the recent statute, and the means whereby the important object we have recommended may most effectually be attained.

(Signed)

HENRY HALFORD, *President of the Royal College of Physicians.*
ASTLEY COOPER, *President of the Royal College of Surgeons.*
J. HINGESTON, *Master of the Society of Apothecaries.*

Explanatory Statement.

The recent Act for registering births, deaths, and marriages in England, presents an opportunity for obtaining that great desideratum in medical statistics—a more exact statement of the causes of death, in the case of every registered death throughout the whole of England and Wales, after the month of June next ensuing.

The register-books in which all deaths are to be registered after the last day of June, 1837, contain columns wherein may be inserted the cause of death, in juxtaposition with those other important illustrative circumstances, the sex, the age, and the profession, or calling, of the deceased person. Each register-book will also be assigned to a particular district of small extent, and will thus shew in what part of the kingdom each death has occurred. If, therefore, the cause of death be correctly inserted, there will exist thenceforward public documents, from whence may be derived a more accurate knowledge, not only of the comparative prevalence of various mortal diseases, as regards the whole of England and Wales, but also of the localities in which they respectively prevail, and the sex, age, and condition of life, which each principally affects.

For the attainment of this object it is necessary to ensure, as far as it is possible, the "cause of death." It is obvious that on this subject the requisite information can seldom be given to the registrar, except by the medical attendant on the deceased person, and that even if the registrar be a medical practitioner (which in many instances will be the case), yet will he often be unable to ascertain the truth in this respect, if he is to depend solely on the reports of persons ignorant of medicine, and of the names and nature of diseases; and it cannot be expected that from his own knowledge he will be able so far to correct their errors as to ensure a statement worthy of credit. The requisite information must therefore be supplied, either directly or indirectly, by the medical attendant of the deceased person; that is to say, if such medical attendant is not applied to by the registrar, he must afford the requisite information to those other persons to whom the registrar must apply.

The persons who, according to the act for registering births, deaths, and marriages in England, must give information to the registrar on being requested so to do, are

"some person present at the death, or in attendance during the last illness," or "in case of the death, illness, inability, or default of all such persons, the occupier of the house or tenement, or (if the occupier be the person who shall have died) some inmate of the house or tenement in which such death shall have happened." It is also provided, that "for the purposes of this act, the master or keeper of every gaol, prison, or house of correction, or workhouse, hospital, or lunatic asylum, or public or charitable institution, shall be deemed the occupier thereof."

It is therefore earnestly recommended that every practising member of any branch of the medical profession who may have been present at the death, or in attendance during the last illness, of any person, shall immediately after such death place in the hands of such other persons as were in attendance, of the occupier of the house in which the death occurred, and of some inmate who may probably be required to give information, written statements of the cause of death, which such persons may show to the registrar, and give as their information on that subject.

It is desirable that such statement should be very short, the column in the register-book in which it is to be inserted being not more than sufficient for the insertion of about ten words of moderate length. It should, therefore, contain only the name of the disease which was considered to be the cause of death, and not a detailed account either of antecedent symptoms, or of the appearances which may have presented themselves after death. It is also desirable that such statement should exhibit the popular or common name of the disease, in preference to such as is known only to medical men, whenever the popular name will denote the cause of death with sufficient precision.

PHYSIOLOGICAL DISCOVERIES. BY T. J. TODD, M.D.

I. *Nutrition and Secretion.* Dr. Todd, of Brighton, in pursuing a course of physiological researches, has been led to the conclusion that the process of nutrition as well as of secretion is performed by capillaries in a state of *stasis*. The capillaries on the surface of a granulating ulcer are in this state. This form of stasis of the blood in the capillaries, which, in contradistinction to other forms, may be termed *dynamic stasis*, is not a passive but an active state of these vessels, entirely independent of the heart, but dependent upon their own innervation, or that of the organs to which they belong. Dr. Todd has been able to determine the whole process of the formation of new vessels, differing in some respects from that of previous observers; and he has ascertained by direct experiment the conversion of coagulable lymph into pus, without the intervention of the function of any description of vessels.

II. *Artificial Digestion.* Dr. Todd, with the assistance of Mr. Schweitzer, of the German Spa, Brighton, has been performing experiments with the artificial *digestive fluid*, in imitation of those of Schwann, of Berlin, recorded in our present number, and has arrived at some new and interesting results not attained by Dr. Schwann. The digestive fluids with which Dr. Todd operated were prepared from the stomachs of the ox, the horse, the dog, and the cat. Some, also, prepared from the upper portion of the small intestines, was found not less powerful. The presence of the acid is essentially necessary in the preparation; when Mr. Schweitzer endeavoured to procure the digestive fluid with distilled water alone, or when he treated the mucous membrane in the same way by a weak alkaline solution, a rapid putrefaction stopped all further proceeding. Various vegetable and animal substances were submitted to the action of these digestive fluids, at the ordinary temperature of the atmosphere, and the constant result in all the instances has been that all these substances have been resolved into their elementary organic globules. There has been no exception to this, so far as the experiments have extended, and these include, amongst vegetable substances, the artificial digestion of boiled cauliflower, of bread, and of vermicelli, not dressed; and, amongst animal substances, the white of egg boiled, the coagulum of blood, butter, fat, the muscular fibre of mutton, and of fish boiled and raw, filaments of the sciatic nerve raw, and scrapings of bone. The products of these artificial digestions, especially of the vegetable substances, compared with chyme taken from a dog which had been feeding upon ground oats, were very much alike, except that the watery part had been removed from the chyme. It is therefore reasonable to conclude, that the process

of artificial digestion is essentially the same with the process of natural digestion in its first stage, that alimentary substances are not reduced to their chemical, but resolved into their organic elements; so that the globules, observed by physiologists in the stomach, are not formed by the process of digestion, but are the globules existing in the alimentary substances, developed or disengaged by that process.

At another time we hope to be able to lay before our readers some account of the researches which have led to these important discoveries.

British Annals of Medicine. No. 16 and 23

EXTRACT OF A LETTER FROM HEIDELBERG, DATED MAY 23, 1837.

..... ON my way here, I visited Brussels, Liège, and Bonn.... I did not see much of eye-diseases in the Military Hospital of Brussels; but in that of Liège I saw a very great number of cases.... I was introduced to Dr. Vlemmincke, inspector-general of the Belgian army medical department, who gave me a general order of admission for all the military hospitals in Belgium; he, moreover, gave me two books, which I will here notice. The first as to date is entitled "Rapport à M. le Ministre Directeur de la Guerre, Baron Evain, sur l'Ophthalmie de l'Armée; précédé de Considérations générales sur l'Étiologie de cette Affection; par J. F. Vlemmincke, M.D." Dr. V. endeavours to show that the ophthalmia of the army is not propagated so much by contagion as by other more appreciable and palpable causes; among the principal of which he particularly insists on the peculiar dress of the soldiers,—the tightness of the collars of their coats, and weight of their caps; and this he infers from the circumstance that none but soldiers have been affected, and that the ophthalmia has not prevailed in the French army, the soldiers' clothes not being made so as to produce any undue compression of the neck or head; whilst, in the Prussian army, where the contrary is the case, the ophthalmia has also prevailed. He, moreover, mentions that it was the infantry among whom the disease principally raged; and these, he tells us, are the very men who have the most inconvenient clothing, and who are the longest time on duty in full dress. In consequence of the representation of Dr. V., the fashion of the soldiers' clothes has now been brought to resemble more that of the French, and it appears that the ophthalmia has been on the decline since. To affirm, with Dr. V., that this is entirely owing to the change of dress, would perhaps be going rather too far; but I have no doubt that the removal of the compression of the neck is a powerful prophylactic. Anxious to diffuse among the medical officers of the army as correct a knowledge of the pathology of this scourge as possible, Dr. V. has got translated, for their use, Dr. Eble's very excellent monography on the Structure and Diseases of the Conjunctiva. The title of the French translation is "De la Structure et des Maladies de la Conjunctive, avec des Considérations particulières sur l'Ophthalmie contagieuse, par Burchard Eble, M.D., Médecin de Regiment au Service d'Autriche, &c." There is prefixed to the translation an introduction by Dr. V., in which he very much recommends the study of ophthalmology, and defends his own opinions as to the cause of the ophthalmia of the army, from the attacks of his numerous opponents, the contagionists.

In Belgium, there are four universities; those of Louvain, Gand, Liège, and the "Université libre" of Brussels. The latter was established about three years ago, by subscription: a medical school had existed before. The power of conferring degrees has been taken away from the universities. Degrees are now granted by a jury of examiners, appointed by the government, the senate, and house of representatives. The jury sits in Brussels, and thither every candidate for a degree must come to be examined, no matter where he has studied. The candidate for the degree of M.D. must first obtain a degree in science. No particular course of study is required, particular period of study, nor age: all that is necessary is knowledge sufficient to enable the candidate to undergo the examination. The jury is very strict in the examination; so that there will be fewer graduates in Belgium now than formerly.

The "Université libre" of Brussels is governed by a council chosen by the subscribers. The council appoint the professors. There are ordinary and honorary professors, and *aggrégés*. There are about three hundred students altogether, but

so very few are medical. In regard to the duration of the courses, Dr. Guizot informs me that his course of Physiology lasts the whole year; three lectures a week. The fees of the university are,—*Droit d'inscription*, 15 francs; *Retribution annuel*, 5 francs.

BOOKS RECEIVED FOR REVIEW.

ENGLISH.

1. *Homœopathy briefly explained, in a letter to Sir Henry Hallford, Bart. M.D. &c.* a Licentiate.—London, 1837. 8vo. 66.
2. *The Cyclopædia of Practical Surgery.* Edited by W. B. Costello, M.D. Part I. ril, 1837.—Royal 8vo. pp. 112. 5s.
3. *Guy's Hospital Reports.* No. IV. ril, 1837. Edited by G. H. Barlow and P. Babington, A.M. 8vo. pp. 310; plates. 6s.
4. *A Companion to the Ship's Medicine and Hygiene, &c.* By W. G. Faddy, Surgeon.—London. 12mo. pp. 60. 2s. 6d.
5. *A Manual of the Diseases of the Eye.* By S. Littell, jun. M.D.—Philadelphia, 1837. 8vo. pp. 253.
6. *A Practical Compendium of the Diseases of the Skin, including a particular consideration of the more frequent and tractable Forms of these Affections; with Notes.* By Jonathan Green, M.D. &c. Second Edition, corrected and improved; with two Plates.—London, 1837. 8vo. pp. 371. 12s.
7. *A Manual of General Anatomy.* By F. Meckel, &c. Translated from the German into French, by A. J. L. Jourdan and G. Breschet. Translated from the French, with Notes, by A. S. Doane, A.M. M.D., and others.—London, 1837. 8vo. pp. 421. 6s.
8. *A Letter to Sir Henry Hardinge, on the Effects of Solitary Confinement on the Health of Soldiers in Warm Climates.* By G. Malcolmson, Surgeon E. I. C. Service, late Secretary to the Madras Medical Board.—London, 1837. 8vo. pp. 23.
9. *An Inaugural Discourse on Medical Education.* By J. C. Cross, M.D., Professor of Materia Medica in the Medical College, Ohio.—Cincinnati, 1835. Royal 8vo. pp. 20.
10. *An Introductory Lecture, delivered at the Anatomical Theatre of the University of Maryland, on the 1st November, 1836.* By R. E. Griffith, M.D. Professor of Materia Medica, &c.—Baltimore, 1837. 8vo. pp. 14.
11. *A Letter from Dr. Brigham to D. M. Case, M.D., author of Phrenology known by its Fruits.*—Hartford (U. States), 1836. 8vo. pp. 24.
12. *Observations on the Nature and Treatment of Calculous Diseases.* By B. W. Dudley, M.D.—Lexington, 1836. 8vo. pp. 40.
13. *A Treatise on the Diagnosis and Treatment of Diseases of the Chest. Part I. Diseases of the Lung and Windpipe.* By W. Stokes, M.D. M.R.I.A., Physician to the Meath Hospital, &c.—Dublin, 1837. 8vo. pp. 557. 16s.
14. *The Works of John Hunter, F.R.S., with Notes.* Edited by J. F. Palmer, Surgeon. Vol. II., containing Treatise on the Teeth, with Notes by Thomas Bell, F.R.S.; and Treatise on the Venereal Disease, with Notes by G. G. Babington, Esq.—London, 1835. 8vo. pp. 448. 17s. 6d.
15. *A Dictionary of Practical Medicine.* By James Copland, M.D. F.R.S. &c. &c. Part IV.—London, 1837. 8vo. (From FEVER to HEART.) Pp. 303. 9s.
16. *Principles of the Theory and Practice of Medicine; including a third Edition of the Author's Work upon Diagnosis.* By Marshall Hall, M.D. F.R.S.L. & C.—London, 1837. 8vo. pp. 503. 16s.
17. *Medical Essays, by J. Hungerford Sealy, M.D. &c.* No. II. The Imagination; its History and Effects.—London, 1837. 12mo. pp. 91. 3s.
18. *An Address delivered to the Members of the Worcestershire Natural History Society, on the Opening of the Worcestershire Museum, Sept. 15, 1836.* By Charles Hastings, M.D. F.R.S.—London, 1837. 8vo. pp. 57. 2s. 6d.
19. *A Treatise on the Diseases and Injuries of the Larynx and Trachea; founded on the Essay to which was adjudged the Jacksonian Prize for 1835.* By Frederic Ryland, Surgeon to the Town Infirmary, Birmingham.—London, 1837. 8vo. pp. 328; with six Plates. 18s.
20. *The Teeth a Test of Age, considered with reference to the Factory Children.* By E. Saunders.—London, 1837. 8vo. pp. 76.
21. *An Exposition of the Symptoms, essential Nature, and Treatment of Neuro-pathy, or Nervousness.* By J. M. Gully, M.D. &c.—London, 1837. 8vo. pp. 192. 6s.
22. *Rudiments of Physiology. Part III. On Life, as manifested in Sensation and in Thought.* By the late John Fletcher, M.D. Edited by R. Lewins, M.D.—Edinburgh, 1837. 8vo. pp. xxiii. 14s. 4s.

23. *The Cyclopædia of Anatomy and Physiology. Part X. ELECTRICITY*.—Erx.—R. 8vo. pp. 96. 5s.

24. *A Treatise on Diet: with a View to establish, on practical Grounds, a System of Rules for the Prevention and Cure of the Diseases incident to a disordered State of the Digestive Functions.* By J. A. Paris, M.D. F.R.S. Fifth Edition, corrected, enlarged, and nearly rewritten.—London, 1837. 8vo. pp. 414. 12s.

25. *On the Nature and Treatment of Dropsical Diseases: in four Parts. Part I. and II. On Dropsies from suppressed Perspiration and diseased Kidney. Part III. On Dropsies from Impediment to the Circulation. Part IV. On Dropsies from Topical Affections.* By J. Osborn, M.D., Fellow, and late President of the King and Queen's College of Physicians in Ireland.—Post 8vo. Second Edition. 7s.

26. *An Exposition of the Signs and Symptoms of Pregnancy, the Period of Human Gestation, and the Signs of Delivery. Illustrated with numerous coloured Plates and Wood-cuts.* By W. F. Montgomery, A.M. M.D. Professor of Midwifery to the King and Queen's College of Physicians in Ireland. In one volume.—8vo. 16s.

27. *What Asylums are and ought to be: being the Substance of five Lectures delivered before the Managers of the Montrose Royal Lunatic Asylum.* By W. A. F. Browne, Surgeon, &c.—Edinburgh, 1837. 8vo. pp. 231. 5s.

28. *Additional Remarks on the Use of English Mineral Springs, especially those of Bath, Cheltenham, and Leamington; with the most recent Analyses.* By E. Lee, Esq. M.R.C.S. &c.—London, 1837. 8vo. pp. 20.

29. *Two Lectures on Lithotomy and the Bi-lateral Operation.* By E. Lee, Esq. M.R.C.S.—London, 1837. 8vo. pp. 16.

30. *The Transactions of the Provincial Medical and Surgical Association. Vol. V.*—London, 1837. 8vo. pp. 527. 20s.

31. *Transactions of the Philosophical and Literary Society of Leeds; consisting of Papers read before the Society. Vol. I. Part I.*—London, 1837. 8vo. pp. 201; 12 Plates. 10s.

32. *The Medico-Chirurgical Formulary, &c.* By M. Ryan, M.D. &c.—London, 1837. 18mo. pp. 327. 3s. 6d.

33. *Aphorisms on Natural and Difficult Parturitions, Puerperal Diseases, and on the Physical Management of Infants.* By M. Ryan, M.D. &c.—London, 1837.—18mo. pp. 128. 2s.

FOREIGN.

1. *Beretning, Betænkning og Indstilling fra en til at undersøge de sindsvages Kaar*

i Norge og gjøre Forslag til deres forbedring i aaret 1825 naadigat nedsat Kongelig Commission. Udgivet af Fred. Holst, M.D., Prof. i Medicin, &c.—Christiania, 1828. 8vo. pp. 139.

2. *Dissertatio de Acidi Nitrici usu medico.* Auctore Fred. Holst.—Christiania, 1816. 8vo. pp. 136.

3. *Morbus quem Radesyge Vocant, quinam sit, qua namque ratione e Scandinavia tollendus?* Commentatio. F. Holst, auctore.—Christiania, 1827. 8vo. pp. 157.

4. *Universiteterne i Christiania og Upsala.*—Christiania, 1836. 12mo. pp. 102.

5. *Medicinal Taxt for Norge.*—8vo. pp. 39. Christiania, 1834.

6. *Fortegnelse over de auctoriserede Læger i Norge.*—Christiania, 1834. 8vo. pp. 8.

7. *Von den Wirkungen der gebräuchlichen metalle auf den menschlichen organismus überhaupt und als heilmittel und dem Kupfersalzmiake-Liquor und andern Kupferpräparaten als solchen insbesondere.* Von Dr. J. R. Köchlin.—Zürich, 1837. 8vo. pp. 186.

8. *Die Mercurialkrankheit in allen ihren formen, geschichtlich, pathologisch, diagnostisch und therapeutisch dargestellt.* Von G. L. Dietrich, M.D. &c.—Leipzig, 1837. 8vo. pp. 422.

9. *Disquisitiones Sterilitatis muliebri.* Auctore Joanne Person, M.D.—Petropol, 1835. 8vo. pp. 90.

10. *Handwörterbuch der gesamten Chirurgie und Augenheilkunde.* Herausgegeben von Ernest Blasius, Professor der Chirurgie an der Universität zu Halle, &c. Erster Band. A—C.—Berlin, 1836. 8vo. pp. 884.

11. *Das Heimweh und der Selbstmord.* Von J. H. G. Schlegel, M.D. &c. 2 vol. 8. —Hildburghausen, 1835. 8vo. pp. 125, 301.

12. *Traité de Diagnostic et de Séméiologie.* Par P. A. Florry, M.D. &c.—Vol. I. et II.—Paris, 1837. 8vo. pp. 1300.

13. *Bibliothek for Læger. No. IV., 1836; No. I. 1837. Redigeret af dens medlem C. Orro, M.D. &c.*—Kjøbenhavn, 1836-7. 8vo.

14. *De Fistula Urethro- et Vesico-vaginali Commentatio, remedia contra hunc morbum systematice et critice expone-ns.* Auctore J. C. Benz, M.D.—8vo. pp. 138. Hauniae, 1836.

15. *Memorie della Società Medico-Chirurgica di Bologna. Vol. I. Fasc. 10-20.*—Bologna, 1835-6. R. 8vo. pp. 223.

16. *Memorie sul Cholera-Morbus. Appendice al Bullettino delle Scienze Mediche di Bologna. Fasc. 10. e 20.*—Bologna, 1836. 8vo. pp. 173.

THE
BRITISH AND FOREIGN
MEDICAL REVIEW,
FOR OCTOBER, 1837.

PART FIRST.
Analytical and Critical Reviews.

ART. I.

A Treatise on the Diagnosis and Treatment of Diseases of the Chest.
Part I. *Diseases of the Lung and Windpipe.* By WILLIAM STOKES,
M.D., M.R.I.A., Physician to the Meath Hospital, &c.—Dublin, 1837.
8vo. pp. 557.

Notes et Additions au Traité de l'Auscultation Médiate de LAENNEC.
Par M. MERIADEC LAENNEC, D.M.P. &c., et M. ANDRAL, Professeur à
la Faculté de Médecine de Paris, Médecin de l'Hôpital de la Charité, &c.
Notes and Additions to the *Treatise on Mediate Auscultation* of LAENNEC.
By M. MERIADEC LAENNEC, M.D. Paris, &c.; and M. ANDRAL,
Professor of the Faculty of Medicine of Paris; Physician to the Hos-
pital of La Charité, &c.—8vo. pp. 510; with two coloured Plates.
Paris, 1836.

3. *Observations on the Surgical Pathology of the Larynx and Trachea,*
&c. By WM. HENRY PORTER, A.M., Vice-President and Professor of
the Theory and Practice of Surgery in the Royal College of Surgeons
in Ireland; Surgeon to the Meath Hospital, &c.—Dublin, 1837. 8vo.
pp. 280.

4. *A Treatise on the Diseases and Injuries of the Larynx and Trachea,*
&c. By FREDERICK RYLAND, Surgeon to the Town Infirmary,
Birmingham.—London, 1837. 8vo. pp. 338; with Plates.

WE are sanguine enough to believe that medicine is at length really beginning to assume the character of an inductive science. The methods of careful and extended observation and cautious generalization that have of late years so much improved surgery, and elevated it from a state of the blindest empiricism to that of a rational art, have now, in consequence of the multiplied researches in morbid anatomy, and the improved means of physical as well as physiological investigation, become applicable to the study of many internal diseases. In proportion as these modes of study are applied, our facts become more numerous and less fallacious, and our inductions from them more sure; so also our knowledge of

diseases increases, and our treatment of them is rendered more successful. But these methods of observation are not to be discovered, nor, when discovered, are they to be exercised, without much labour and skill; and it may be long before they are made profitable in practice. They have, therefore, been pursued by only a few. They do not commend themselves to the indolent or the sordid; and the routine practitioner, who is all alive to the empirical discovery of a new remedy, which may at once become to him a source of profit, neglects, and even dares to ridicule, the researches of a Harvey or of a Hunter, because they do not carry him at once to some easy rule of practice or some wonder-working remedy.

The tardiness with which the study of morbid anatomy advanced in this country, and the obloquy thrown on the important discoveries of Laennec, by which this study has been connected with living pathology, are humiliating proofs of this sordid and indolent spirit among us; and the too-frequent award of public favour, rather to those who cunningly humour the feelings and whims of society, than to those who honestly strive to gain a scientific knowledge of their art, has fostered empiricism and ignorance in every rank of the profession, and has greatly retarded the progress of the science. It is thus that the improvement of medicine will greatly depend on the intelligence and discrimination of the public at large; and a chief reason why we now begin to hope for better things is, that this intelligence is on the rapid increase. The general diffusion of useful knowledge has conferred on every well-educated man some competency to judge of professional merit; and, although the aggregate weaknesses of human nature will always show themselves in the occasional triumph of fashion and caprice over reason and good sense, yet we see around us sufficient proofs that public fame and favour are more and more won by well-exerted talents and scientific industry.

The authors of the works before us, and the works themselves, illustrate the foregoing remarks more fully than we now have time to explain; but there is a circumstance regarding two of these authors which we think it right to notice, because it points out an element almost essential to success, yet not sufficiently appreciated or brought into operation in this country. M. Andral and Dr. Stokes, after an education which comprised the best part of those aids which modern science has conferred on medicine, were enabled to carry their knowledge and talents, with all the undaunted energies of youth, to the bedside of the sick, and there to render them available in extensively observing and interpreting the phenomena of disease. The one, in an unlimited access to the patients in the wards of M. Lermnier at La Charité, the other, as physician to a large hospital at Dublin, found a rich field open to them, and they have cultivated it with assiduity and ability. The valuable productions of these authors are plainly the result of the early devotion of their whole time and talents to the improvement of these advantages. The "*Clinique Médicale*," a work unrivalled of its kind, and the philosophical "*Précis d'Anatomie Pathologique*," which is in great measure a generalization of the facts contained in the former work, would probably have never appeared but for this wide field of observation given to M. Andral thus early, when he could devote his whole energies to cultivate it; for, although he has since had extensive hospitals under his own charge, yet

He has produced no late work equal to his first; and it is questionable whether, with the multiplied engagements and demands on his time, it be possible for him to achieve such another work as the Clinique Médicale. The many excellent clinical reports already published by Dr. Stokes, and the valuable practical treatise which we have now to present to our readers, afford further proofs of the advantages accruing to science from early placing zealous young men of talent and education in a good field of extensive observation and experience. Had such opportunities, in the case of the authors in question, been withheld even for a few years, the result would probably have been what we continually see in the appointments to great hospitals in this country. The most competent men have to wait in "hope deferred," year after year, until at last, when, haply, they do gain the object of their wishes, their ardour is gone,—much of their knowledge and habit of study lost through disuse, their minds contracted by the limits of some petty and imperfect sphere of observation to which their circumstances have confined them, and, last not least, the *res angusta domi* has rendered the engagements of a scanty private practice, or of any other more direct way of getting a livelihood, of more pressing importance than working for the science or for the ultimate improvement of the art of medicine. It is a common but great error to suppose that it is always to the advantage of the patients or pupils of a hospital to be under the care of a physician of "some standing;" for, if many of his accumulating years have passed him *standing* without experience, they have left him behind the advance of knowledge; and, if he have succeeded in gaining experience in private practice, his engagements in this will prevent him from giving his time and energies to the duties of the hospital; a great share of which will consequently be left to the subordinate officers. For these, and other reasons also, we would desire to see the appointments to large hospitals limited to a term of years, (say eight or ten;) and, in order that, by this plan, the institutions might not be deprived of the aid of more experienced men, on arriving at the termination of their appointment, the physicians and surgeons might be constituted consulting officers for the same length of time. Without dilating on the advantages of such a regulation, we would express our conviction that it would open the field of scientific practice to a greater number of competent labourers, and it would almost ensure from each of these a greater exertion of talent and industry.

In the present article we propose to review the "Notes and Additions" of MM. Andral and Meriadec Laennec, together with those parts of Dr. Stokes's work which relate to diseases of the chest, reserving for a future Number the section which treats of Diseases of the Larynx and Trachea, and the very valuable monographs of Messrs. Porter and Ryland on the same subjects.

Laennec's discovery of auscultation as a method of diagnosis constituted a small part of his merit. He not only gave us the key to knowledge, but unlocked and set forth its treasures. His fine sense and uncommon talent for observation, joined to a very extensive knowledge of morbid anatomy, enabled him to obtain from his discovery a greater mass of new and important results than that which the combined labours of all his followers have yielded since; so that his last work still stands as the chief text on the subject, to which the additions and modifications

of subsequent writers, even the most distinguished, may be appended as notes.* It cannot be denied that many of Laennec's statements have been judiciously qualified by later observers; but one reason for so qualifying them is, not that they were erroneous, but that they were founded on his unrivalled tact and experience in auscultation, and therefore could not be confirmed by ordinary observers; and we truly believe that the confidence which he is said to have unduly placed in auscultation, proceeded as much from his extraordinary and uncommunicable skill in practising it, as from his sanguine partiality to it as its discoverer.

The work of Dr. Stokes being the more complete treatise of those before us, although even he does not profess to include the whole subject or the matter of other works, we may conveniently follow its arrangement, and introduce the notes of M. Andral and M. Meriadec Laennec as occasions occur.

Dr. Stokes divides his book into nine sections, as follows:—Sect. I. General Principles of the Diagnosis of Thoracic Disease; Sect. II. Diseases of the Mucous Membrane; Sect. III. Diseases of the Larynx and Trachea; Sect. IV. Pneumonia; Sect. V. Gangrene of the Lung; Sect. VI. Perforating Abscess of the Lung; Sect. VII. Cancer of the Lung; Sect. VIII. Tubercle of the Lung; Sect. IX. Diseases of the Pleura. There are certain parts of this arrangement which we cannot consider quite consistent with the present state of our knowledge; for instance, the including under diseases of the *mucous* membrane dilatation of the tubes, the pulmonary emphysema of Laennec, and atrophy of the lung; while gangrene of the lung is, with even less reason, separated from pneumonia. Spasmodic asthma and hemorrhage of the lungs are wholly omitted. But these defects, although not unimportant, are much outweighed by the great mass of valuable matter, which, for the most part, is set forth in clear, simple language, and further rendered distinct by summary recapitulations of the conclusions arrived at. His prefatory remarks on the general principles of the diagnosis of thoracic disease are in most instances sound and judicious.

"In the composition of this work, I have kept two great objects steadily in view. Of these, the first is the close connexion of the study of physical signs with that of symptoms, so as to illustrate their mutual bearing on diagnosis, and remove the unjust opprobrium thrown on the advocates of auscultation, that they neglect the study of symptoms. In the next place, I have endeavoured to simplify the subject as much as possible." . . . "I have endeavoured to adapt this work to the wants of the practical man, always assuming that he is familiar with the groundwork of the subject, with the characters and causes of physical signs, as originally taught by Laennec, and more recently investigated in the works of Forbes, Williams, and Clark. Hence I have not entered at any length into the character of physical signs, but rather into the art of reasoning justly upon them; for it is in this that most observers fail. It cannot be too often repeated, that physical signs only reveal mechanical conditions, which may proceed from the most different causes; and that the latter are to be determined by a process of reasoning on their connexion and succession, on their relation to time, and *their association with symptoms*. It is in this that the medical mind is seen. Without this power, I have no hesitation in saying that

* Nothing can better show the permanent estimation in which the work of Laennec is held, than the fact that some other works on Diseases of the Chest, which have obtained considerable circulation, are almost a transcript from it, with very little additional matter.

it would be safer to wholly neglect the physical signs, and to trust in practice to symptoms alone." (*Preface*, p. ix.)

This opinion should, we think, be qualified by the reflection that, without this "power," or "process of reasoning," *symptoms* also are but blind guides, and often tend to mislead as much as unintelligible physical signs. The following remark shows more strongly and truly the value of physical signs.

"As far as was possible, I have shown the utility of physical signs in practice; for it is in the curable diseases that their great value is seen. Indeed, in a large proportion of such cases, the first effect of treatment is to render disease latent, and to cause an absolute necessity for the study of physical signs." (P. xi.)

Dr. Stokes observes, that the labours of modern pathologists in the localization of disease have done much to diminish the uncertainty of medicine; and this chiefly by increasing our knowledge of the signs and symptoms of disease. The word *signs* Dr. Stokes restricts, after the manner of Laennec, to those which are physical, recognizable by the senses, and depending on physical alterations in the conditions and relations of parts; whilst *symptoms* proceed from changes in the functions or vital relations of the suffering organs. This is an arbitrary application of the terms, but it may be a convenient one. The word *symptom* properly signifies a coincident; and, although perceptible changes of function and vital relation are often more certain effects of disease than this would imply, yet their inferiority, in point of connexion with the pathological condition of an organ, to the physical signs, which are an essential part of that condition, may be somewhat represented by this distinction of terms. Symptoms may, then, be considered in a threefold manner:—1st. Changes in the functions of the part itself; 2d. Changes in the phenomena of organic life in various parts of the system; 3d. Changes in the phenomena of animal life. The first is a separation of the primary local from the general phenomena; for the latter two, which comprehend another division into organic animal, would otherwise include the first.

"Thus, in examining the symptoms of a disease of a particular organ, we investigate the state of its own functions. We then examine the changes caused by disease in all the phenomena of organic life, such as digestion, respiration, circulation, absorption, nutrition, exhalation, secretion, and animal heat. From these we advance to the phenomena of the life of relation, and examine the changes produced in the muscular power or function, the organs of sense, the moral affections, and the intellectual manifestations. In a case of acute inflammation of the lung, we observe, in the first place, lesions of its own function, painful and hurried respiration, imperfect arterialization of the blood, cough, and expectoration: these are what may be called local symptoms; but we may have others referrible to the disturbance of organic life in parts distinct from the lung: thus, we observe excitement of the heart, fever, and various derangements of the digestive and urinary systems: further, in certain cases there may be signs of a lesion of the phenomena of the life of relation; as, for instance, prostration of strength, and other signs of derangement of the cerebro-spinal system. It must be obvious that, in the detection of the nature and seat of any disease, the more we can combine the observation of physical signs with functional symptoms, the greater will be the accuracy of our diagnosis. Now, if we compare together the diseases of the three great splanchnic cavities, we find that those in which this desirable combination is most attainable are, first, those of the chest; next, the abdomen; and, lastly, the affections of the brain and spinal marrow. Accordingly, if we compare the diseases of these systems with respect to the perfection of diagnosis, we find

the order to be, first, the respiratory; next, the abdominal; and last, the cerebro-spinal, or that in which this combination is least applicable." (P. 3.)

Dr. Stokes's reasons why the viscera of the chest are, above all others, calculated to give physical signs of their condition, will admit of compression.

1. The chest contains air in certain quantity, which quantity is changed by disease, and can be appreciated by percussion.

2. The division of the chest into two halves, and to some degree of each lung into lobes, circumscribes the physical changes to limited parts, and gives a facility of detecting them by comparison with other parts.

3. The regular and notable motions of the pectoral organs furnish another element of diagnosis between their healthy and diseased condition.

4. The phenomena of the voice extend to the contents of the chest, and may be modified by disease there.

5. The shape of the chest may be so changed by disease of the organs within as to give signs of the existence of that disease.

6. The air in every part of the lungs being in continual motion occasions sounds which become signs of the condition of the structure of each part. (This might be included under the heads 1 and 3.)

7. The mobility of the organs, and the yielding nature of parts of the walls of the chest, give rise to various displacements, which may afford physical signs. Each of these heads is fully explained and illustrated. Thus, in speaking of the fifth source of signs, change of shape, we have the following remarks:

"If we look to the affections of the head and spinal cavity, we find that, with the exception of some few cases of congenital dropsy, arrest of development, or chronic effusion, the more frequent diseases of this class do not produce any perceptible alteration or change of shape in the bony cases of the cerebro-spinal mass. In the abdomen, on the other hand, from the very yielding nature of its parietes, changes of volume and shape are common; but it will be found that these seldom are available for the detection of the nature of their cause; a circumstance as well attributable to the great yielding of the parietes, as to the fact of the viscera being contained in a single cavity. The chest, however, presents bony, elastic, and fleshy parietes, and its principal viscera occupy three distinct cavities.

"Although it cannot be maintained that the alterations of shape and volume of the chest will always suffice to point out the nature of their causes, yet we must admit that, with respect to the diseases of its interior, the modifications of its exterior are more numerous and of greater diagnostic value in the chest than in either of the other two cavities. Let us consider the extraordinary convexity of the whole chest, the arching of the sternum, and the appearance of the shoulders, in a case of dilatation of the air-cells; the loss of symmetry in the sides, and the peculiar smooth appearance produced by the pressure of the fluid on the intercostal spaces, in the case of emphysema; the contraction of the side and the depression of the shoulder while the spine remains unbent, in the same case, where absorption of the fluid has taken place; and the sunken and flattened appearance of the antero-superior regions in advanced phthisis. All these are instances of peculiar modifications of shape of the exterior walls of the cavity, coinciding with physical changes in the subjacent viscera. It is true that, taken alone, they could not lead to a positive diagnosis, but, when combined with other signs and symptoms, their value is highly important; and this, with their number, should make us admit that, as a means of diagnosis, the modifications of external form produced by disease are more valuable and much more frequently applicable in thoracic than in the cerebro-spinal or abdominal affections." (P. 7.)

We think that Dr. Stokes might have given another comprehensive reason why the diseases of the chest may, better than those of other cavi-

be interpreted through physical signs. The structure and functions of the thoracic viscera are better understood and more mechanical than those of the head or abdomen. The organs of respiration and circulation form a mechanism which is admirably adapted to the accomplishment of its known objects, the aeration and circulation of the blood. The working of this machinery must necessarily be attended with notions accessible to our senses, and thus constituting the elements of physical diagnosis. In the abdomen, the functions of the viscera are complicated by the more obscure vital properties of secretion and digestion, and are therefore less fitted to be represented by physical signs; and in the brain and spinal marrow there is no intelligible working of machinery; there is therefore the lowest capacity to yield physical signs, and functional symptoms must be the only interpreter.

As Broussais well remarked, and Dr. Stokes enlarges on the remark, that without physical signs thoracic diseases are often more difficult of detection than those of other cavities. Still our author does most wisely to insist on the absolute necessity of attending to the general as well as to the particular physical signs. He truly remarks that "great injury has been done to the cause of physical diagnosis by some inexperienced men who, starting from the principles of its illustrious founder, have neglected too much the study of symptoms."

The discursive style which Dr. Stokes adopts renders him at times somewhat prolix; and, although there is everywhere the stamp of good judgment and sound experience in his illustrations, the want of a more concise and simple arrangement exposes him to occasional repetitions. In enumerating the sources of physical signs, there is necessarily a repetition of what had been said in describing the aptitude of the chest to elicit physical signs; and under the heads "mutual dependence of signs and symptoms," "insufficiency of signs alone," and "relation of signs and symptoms," we have the same matters again and again brought under notice. This repetition may perhaps be useful in impressing the more important subjects on the mind of the reader; and the following quotations will show the weight of the positions and value of the illustrations cited.

It is never to be forgotten that, although in these various classes, we have a vast number of well-marked and essentially differing physical phenomena, *there is not one of them, which, taken singly, can be considered as a pathognomonic sign. Nay, we go further, and declare that no possible combination of them can be considered as entirely pathognomonic.* By some of them, taken singly, or by various possible combinations, we may indeed ascertain the existence of certain mechanical conditions of the intra-thoracic viscera, as, for instance, permeability or impermeability, increase or diminution of the quantity of air, the existence of cavities of various sizes and with free communications, the roughened state of a serous membrane, or the displacement of particular organs; but, if we seek to determine by physical signs alone, the existence of all or any of these phenomena, we shall find it to be difficult or impossible. Only, as we have said before, by the connexion of the accurately ascertained physical signs with the previous history and actual symptoms of the case, that a correct diagnosis can ever be arrived at. In order to establish the proposition that no physical sign, taken singly, can be considered as pathognomonic, let us take a brief review of the different signs, commencing with those least frequently applicable, and progressing to those of most common occurrence.

1st. Existence of an external collateral venous circulation. This appearance, which has been described by Reynaud, is indicative of a great amount of obstruction

to the internal venous circulation. But of the nature of that obstruction it alone can tell nothing. It may proceed from the presence of a tumour, aneurismal or otherwise, or from disease on the internal surface of the venous trunk itself. This was observed to occur in the vena portæ and inferior cava in a patient whose case is described by the same author, and in whom the superficial veins of the abdomen took on a supplementary action. In obstructions of the right side of the heart, the dilatations of the jugular veins so long noticed seems to be a commencement of the same morbid appearance, and Dr. Graves has shewn that a varicose state of the superficial thoracic veins may occur from cancerous degeneration of the lung itself. If, for the sake of argument, we assume that these different causes for the appearance in question were of equal frequency, and that from it alone we determined on the existence of any one of them, there would be four chances to one against our making a correct diagnosis.

"2d. *Signs derived from the displacement of the thoracic or abdominal viscera.* Of these, those that are most frequently recognized are the displacements of the heart and liver; the first is commonly observed in cases of empyema, the displacement to the right of the mesian line occurring in empyema of the left side, while that in the opposite direction indicates accumulation in the right pleura. Now, although displacement of the heart to the right side of the sternum constitutes one of the best indications of empyema of the left pleura, yet, taken alone, it is anything but unequivocal. A tumour or an hypertrophy of the left lung may produce a pulsation to the right of the sternum; the same may be caused by an hypertrophy and dilatation of the right cavities of the heart: and Dr. Graves and I have shewn that an aneurism of the aorta may push the heart to the right side. I have also published the particulars of an extraordinary case of dislocation of the heart from external violence, in which the organ was drawn far to the right of the mesian line, and in which no sign of empyema of the left pleura had ever occurred. When I come to treat of the affections of the heart I shall give the particulars of this case. Lastly, well-attested examples of congenital displacement of the viscera have been recorded, in which the heart was placed at the right of the mesian line. On the other hand, displacement of the heart towards the left axillary region is a circumstance which, from its nature, is commonly overlooked, and which may occur from other causes. I may also remark, that the previous contraction of either side from a former attack of pleurisy should be added to the possible uncertainties of this source of diagnosis, for in such cases, the heart seldom resumes its normal situation with respect to the healthy side.

"As the displacement of the heart, considered alone, and without reference to any acoustic observation, is reducible, as a sign, to the mere feeling or seeing its pulsations in an anormal situation; so the displacement of the liver is reducible to the observation of a tumour in the right hypochondrium. Now, even supposing that the case was one of displacement of the liver, it will be shewn that this might arise from other causes than empyema, to which it is commonly attributed; intra-thoracic tumours might produce it. I have observed it from Laennec's empyema; it may occur from aneurism of the abdominal aorta, or from that of the hepatic artery; and I need scarcely remark, that we may have hepatic tumors, independent of any disease of the pleura; and, conversely, pleural effusion without this sign. These observations are sufficient to shew that displacements of the heart or liver cannot alone be looked upon as certain diagnostics of the lesion which has produced them.

"3d. *Signs derived from the inspection of the motions of the thorax during respiration.* * * * The respiratory movements are so infinitely various in the different diseases of the chest, that we are not warranted in founding any certain diagnosis upon the observation of them alone.

"4th. *Signs referrible to the sense of touch.* This class presents to us several signs which, as far as they go, lead to a greater degree of certainty than those in the preceding one. Yet, like the other physical signs, they only reveal to us, and that not constantly, mechanical conditions, without leading to the diagnosis of the nature of disease, or the pathological state of the viscera. Thus, the bronchial vibration may occur from any liquid effusion into the tubes, and with various states of the lungs. The feeling of gurgling may proceed from a tuberculous, pneumonic, or gangrenous abscess, or from a dilated tube containing muco-puriform matter. The cause of the

sensation of friction has not been sufficiently investigated, but we know that the rubbing feel may arise in various states of the serous membranes, while that of non-expansion of parts of the lung will obviously be produced by many different causes. The cases in which the sense of touch leads us to most certainty in diagnosis, are those of the diseases of the heart and great vessels; yet every practical man knows that the most violent impulses occur without organic disease of the circulating system, while, on the other hand, extensive hypertrophy of the heart may exist with a natural impulse, and an aneurism of the aorta give no morbid pulsation.

"5th. *Signs derived from alteration in the shape and volume of the thorax.* In this class of signs we meet with some of considerable value; thus, the convexity of the chest in Laennec's emphysema, when carried to a great degree, is an appearance almost peculiar to the disease; and which, combined with the elevated shoulders and the hypertrophied state of the muscles in the neck, will scarcely mislead. But, of the various partial dilatations and contractions, there is no one at all pathognomonic: many of them may be congenital, or the result of former and of various diseases. Thus, dilatation of either side may arise from emphysema, pneumothorax, pleural effusions of various kinds, effusions into the pericardium, enlargements of the liver, or aneurisms of the aorta. An apparent dilatation, too, may exist, in consequence of the contraction of the opposite side, and contraction itself may arise from a variety of morbid causes or be a congenital conformation.

"6th. *Signs referrible to acoustics.* These have been hitherto divided into those obtained by *percussion*, and by *mediate* or *immediate auscultation*; a division which seems to be unnecessary, as both classes of signs, being appreciable by the ear alone, should be ranged under the general head of *auscultatory phenomena*. Under this head, therefore, we shall treat of Percussion, and Auscultation, whether Mediate or Immediate. Previous, however, to our entering on an investigation of their value as diagnostic means, we shall briefly describe the principles of these modes of diagnosis. It is plain that we have acoustic phenomena referrible to a passive and an active state of the lung; in other words, to conditions, on the one hand, independent of motion or life; and, on the other, inseparable from them. The passive phenomena, or those of percussion, which relate merely to the quantity of air within the thorax, may be as well observed in the dead as in the living body; while the active, or those of respiration, the voice or the phenomena of the heart and arteries, imply motion and life. Hence we may divide the phenomena of auscultation into those of the passive and active conditions." (P. 15-19.)

In comprehending *percussion* under the head *auscultation*, Dr. Stokes has been anticipated by Dr. Forbes, who, in the Cyclopædia of Practical Medicine, includes all these phenomena in the article "Auscultation." The division of the phenomena into *active* and *passive* may be convenient, but we do not think the expressions logical. If an innovation be desired, the words statical and dynamic, applied by philosophers to forces at rest, and forces in motion, would be more correct. But we question the expediency of changing the terms in common use: they correctly imply the mode of obtaining the phenomena, which is of more importance than whether the phenomena result from natural or from artificial movements in the chest.

In practising mediate percussion, Dr. Stokes uses the finger with its back turned to the chest, as a pleximeter. The fingers are now generally preferred to an instrument. The invention of this convenient mode of mediate percussion is ascribed by Dr. Edwin Harrison to Dr. Skerrett, who used it at the time of M. Piorry's early researches.* M. Andral, also, says he constantly employs this method; and he remarks that, although a dress of linen or of flannel on the patient's chest does not

* Med. Gazette, Feb. 18, 1837.

interfere with the sounds elicited by percussion, some other tissues, as cambric muslin, do so in a singular degree. We presume that this must be when they are either too much stiffened or not in close contact with the walls of the chest.

In investigating the principles of percussion as a mode of obtaining signs, Dr. Stokes states that "the sound on percussion is directly as the quantity of air contained within the thorax." But, in exemplifying the phenomena, he finds it necessary to make the sound depend on the quantity of air in the *part* of the thorax where the percussion is applied; and thus the principle of *comparison* becomes an important guide in the practice of percussion. This is an approach to the view of Dr. Williams, which we brought before our readers in our Number for April. This view is that the sound of percussion is not seated in the air, but in the solids, and that, on percussing the chest, its walls will vibrate and yield a sound according to the nature of the substance which is under them. If that substance be light and elastic, as healthy lung, the vibrations will be free and the sound full; if it be more solid or liquid, the vibrations will be resisted or choked, and the sound dull. If this view be correct, (and it certainly seems to be more consistent with all the phenomena of percussion, as well as with the laws of acoustics,) the sound is not in proportion to the quantity of air within the chest, but in proportion as that air is placed at the surface of the lung, and permits the free vibration of the walls of the chest. Thus, in bronchitis and some cases of phthisis and pneumonia, although the air in the chest is much diminished, the sound on percussion is very little, if at all impaired, because in the superficial parts of the pulmonary tissue, there is as much air as usual, or it may even be increased by a superficial emphysema. Dr. Williams has suggested the means, by varying the *force* of percussion, of discerning between these *surface-sounds* and those of the deeper-seated parts.

In a note on the sounds obtained by percussion of different regions, M. Andral remarks that Laennec had omitted to notice the dulness produced by the heart in the left submammary region. This, according to the measurements of M. Piorry and Bouillaud, amounts to one and a half or two square inches, which represents that part of the heart not covered with the lung. This dulness is by no means a measure of the size of the heart, as this organ, acquiring a large volume underneath, a well expanded or emphysematous lung might cause no increased dulness on percussion, unless indeed by the methods of modified percussion proposed by Dr. Williams. M. Andral thinks that dilatation of the air-cells of that part of the lung which overlaps the heart, frequently disguises the results of percussion by yielding an unusually clear sound. In our own experience, we have found the tympanitic resonance of the adjoining stomach a much more common source of perplexity. Neither Laennec nor Andral sufficiently notices the manner in which the *liver* impairs the sound of the lower parts of the chest. This omission has been pointed out by Dr. Harrison,* who justly remarks that the liver often diminishes, although it does not destroy, the pectoral resonance as high as the fourth rib on the right side, and on the left the dulness of this organ may be mistaken for that of the heart.

* Med. Gazette, Feb. 18, p. 776.

With regard to the stethoscope, Dr. Stokes merely recommends "that it shall consist of but one piece, be constructed of cedar or some light wood, have its bell small and with rounded edges, and the ear-piece sufficiently concave." From this notice, and from the light estimation in which Dr. Stokes holds the signs produced by the voice, we presume that he never makes use of a stopper to the instrument. This is neglected very much in this country also, and we believe, very unwisely; for this little appendage furnishes the means of testing some signs that are otherwise very equivocal. We may here notice M. Andral's note on the statement of Laennec, that those "who confine themselves to the *immediate* mode of auscultation will never acquire a great certainty in diagnosis." M. A. does little more than deny that he has experienced any of the imperfections and difficulties which Laennec ascribes to immediate auscultation. On the contrary, he has found it more easy to both physician and patient, and as distinct in its results: the objection against this mode, on account of the perspiration or filth of patients, can always be removed by interposing a handkerchief or napkin; and the noises of friction of the head with the clothes, &c. can always be guarded against by using steady pressure. He admits certain cases of malformation, the examination of sounds of the arteries, and the phenomenon pectoriloquy to be the only instances in which the stethoscope is better than the unarmed ear, and for these instances it may be used. We have had a great deal of experience in both methods of auscultation; and we think that, although Laennec, in his zeal for his instrument, has exaggerated the objections to immediate auscultation, he has by no means overrated the advantages of the mediate method. There are very many patients beneath whose clavicles the ear cannot be closely applied; and yet how important is this region for examination! Again, we must add our experience to that of Laennec against M. Andral, and maintain that the stethoscope separates far better than the simple ear the sounds produced in particular spots. This circumstance gives it a great advantage in determining the nature of a vocal resonance, a bronchial respiration, and the precise situation of the various sounds of the heart. If to these cases we add those in which the stethoscope becomes preferable on the score of delicacy and cleanliness, there will be reason enough to induce us to carry the stethoscope always with us. It is, beyond doubt, more difficult to learn mediate auscultation than immediate; just as it is easier to whistle than to play the flute. The stethoscope requires considerable practice, and, to gain this practice, we would recommend students to use the instrument at first as much as possible in *all* cases, and they will then soon be masters of it in those cases where the naked ear *cannot* be applied. This once gained, they will soon learn to abridge their labour where the easier method can be used, without injuring their powers for nicer points.

Dr. Stokes gives very clearly the principle of the *active* auscultatory phenomena.

"The manner in which the stethoscope assists us in detecting the state of the thoracic viscera can be explained in a very few words. The air, as it passes through the lungs in the acts of inspiration and expiration; the sound of the voice in different parts of the chest; and the impulse and sound of the heart at each pulsation, have all certain characters in the state of health. They present phenomena which are to be considered as standards of comparison. Now, every disease of the lungs and heart

alters or modifies these characters, according as the case may be; and it is by the knowledge of the *morbid phenomena* or deviations from the natural state, that we may judge of the state of the thoracic viscera." (P. 23.)

The following principles are announced by Dr. Stokes as governing the application of physical signs to the detection of disease:

"First. That the value of most of the preceding signs, or of their combinations, in the determination of the seat, nature, or extent of disease, is to be estimated more by comparison with the phenomena of other portions of the chest, than by their mere existence in a particular situation.

"Second. That the greater the number of physical signs which can be combined in any particular case, the more accurate will our conclusions be. But, of these combinations, the most important and indispensable is that of the passive and active auscultatory phenomena.

"Third. That the existing physical signs are to be considered in relation to the period of duration of the disease, and the rapidity or slowness of their own changes.

"Fourth. That, in all cases, the value of physical signs must be tested by the existing symptoms and previous history; while, on the other hand, the observation of these physical signs enables us to correct the conclusions to which we would be led by the unaided study of symptoms.

"I shall proceed to the elucidation of the principle of COMPARISON. This principle, which may be said to be the basis of physical diagnosis, has not been sufficiently insisted on, either in the work of Laennec or of any of the succeeding writers on auscultation. Indeed, Dr. Williams is the only author who alludes to the subject: but even this author does not sufficiently insist on its paramount importance, and refers to it principally as connected with the use of percussion." (P. 24.)

We do not think that Dr. Stokes does justice on this point to the authors that have preceded him. It is true that they have not, as he has, laid down *comparison* as an abstract principle, to be applied to *all* the means of physical diagnosis; nor are we sure that its application ought to be so special and universal as our author insists. There are many signs which are in themselves positive, without the aid of comparison: thus, the rhonchi, the sound of friction, and metallic tinkling, often need no comparison with other parts of the lung to determine their existence; the examination of other parts may or may not give additional information, but it is a misapplication of the term to make the word comparison imply a perfect examination. It is quite true that in this, as in every case where the judgment is exercised, there must be comparison; but in this sense comparison is equally necessary in studying general symptoms, and, in fact, in every pursuit of inductive science. The special applicability of comparison to auscultation is founded on the slight differences between the signs of health and of disease, or of diseases of different kinds. These signs not being sufficiently distinct in their positive characters, may become so on being closely compared with healthy signs in the same subject. Thus, the early signs of phthisis, feeble or slightly bronchial respiration, bronchophony, and dulness on percussion, are not sufficiently positive to declare themselves morbid until they are compared with the phenomena of parts that represent the more healthy standard of the same subject. In this and in similar cases, we find Laennec adverting to the signs being most evident on one side. Dr. Forbes, in his article on Auscultation before quoted, particularly alludes to the greater value of signs when they occur partially, "particularly if on one side only." Dr. Clark, in his treatise on Pulmonary Consump-

tion, frequently speaks of dissimilarity between the phenomena of the two sides, as furnishing the truest signs of the existence of disease; and Dr. Williams, besides, in the passage quoted by the author, insists again and again that these signs are most certain "when they are more manifest on one side than on the other," and "when there is a distinct difference between the two sides of the chest;" and, in speaking of the mode of auscultation, recommends the observer not to change sides, but to lean across, "for the comparison of corresponding points on both sides, where it is important that the two impressions should succeed quickly to each other." Similar quotations might be made from other writers, to show that this principle has been by no means neglected, although Dr. Stokes now upholds, and applies it more ably and fully than the authors who have preceded him. The following illustration is one in which he is original.

"Comparison must be used in determining the value of the modifications of the original active phenomena, as well as of that of the new or non-analogous signs. A good example of this is seen in the detection of foreign bodies in the bronchial tubes; for it is principally by the comparison of the respiratory sounds in both lungs that the diagnosis of a foreign body can be arrived at. To this subject I shall return hereafter. I may also observe that, in certain cases of aneurism of the aorta or innominate, it is by a comparison of the respiratory murmur in either lung that the existence of a tumour at an early period can be detected."

"One of the most striking instances of the difficulties which arise when the application of comparison is fallacious, is that of the development of tubercle in a patient whose chest has been deformed from previous disease. Patients who have recovered from empyema with a contracted side are liable to tubercular development, and the stethoscopist may be called to determine the question as to whether tubercle exist or not. I have been more than once in this situation, and believe that a more difficult case for diagnosis can hardly be met with. The symptoms will seldom afford any assistance, as they may proceed either from incipient phthisis or be those commonly present during the convalescence from empyema; and, in consequence of the previous disease of one pleura, and the contraction of the chest, we are deprived of the advantages of comparison of the phenomena of both lungs by the stethoscope and percussion. Thus, if we find the side originally affected to be duller than the other on percussion, this may be explained either by the diminished volume of the lung or by the development of tubercles. The same difficulty exists in the observation of respiration and the phenomena of the voice." (P. 27-8.)

The importance of a due combination of the signs, particularly those drawn from percussion and the stethoscope, which was strongly insisted on by Laennec, is happily exemplified by Mr. Stokes. He also makes some very judicious remarks on the consideration of signs in reference to time, and the changes which it induces. On this principle, in great degree, hangs the diagnosis of dilated bronchi, foreign bodies in the trachea, acute general development of tubercle, emphysema of the lung, certain cases of empyema and pneumothorax, hydrothorax, nervous palpitation of the heart, pericarditis with effusion, rupture of an hepatic abscess into the lung, and sympathetic cough. Dr. Stokes treats this subject with the practised hand of one whose views have been enlarged by an extensive familiarity with clinical practice. The value of his illustrations tempts us to make extracts from both this and the last head of this subject, in which he proves the necessity of correcting mutually the

physical signs and the general symptoms by each other, but our limits will not permit, and we must refer to the work itself.

The "Notes to Laennec," on the general Phenomena of Auscultation, comprise little more than *résumés* of the signs by M. Meriadec Laennec. They may be useful to his countrymen, as few seem to take the trouble to comprehend fully the text of the great original: in England they are unnecessary, as we have several excellent summaries in original works. Of the additions of M. Andral, there is one of some importance on the relation of the different rhonchi to the acts of inspiration and expiration. He states that the true crepitant rhonchus, which he calls, from its supposed seat, *rôle vésiculaire*, is heard only during inspiration. The mucous and submucous rhonchi, which sometimes otherwise resemble the crepitant, accompany both inspiration and expiration, or the latter only; and the same remark applies to the sibilant and sonorous rhonchi, which also have their seat in the bronchial ramifications. From our own observation, we think that the crepitant rhonchus in the early stage of peripneumony, accompanies expiration as well as inspiration; and it is only as the obstruction becomes more complete that it is confined to the inspiratory act. Now, as much the same thing occurs with the finer kinds of mucous rhonchus, we doubt that this can be made a ground of distinction. M. Andral states that he has verified the sign of the rubbing sound between the pleuræ, predicted by Laennec, and first observed by M. Reynaud. In the case of a young man recovering from a pleuritic effusion on the left side, it continued for three months, and was felt by the individual long after he was restored to health.

The next section, on Bronchitis, is the most voluminous and important in Dr. Stokes's work, and contains a great mass of valuable matter. It includes, however, more subjects than are generally considered to belong to it, and it appears to be a prominent aim of the author to make the study of bronchitis a key to thoracic pathology. Thus, we find comprehended under the head of bronchitis, not only the positively inflammatory diseases of the bronchi, but every kind of disorder, functional and organic, which affects the bronchi to their vesicular terminations: nay, we have dilatation and atrophy of these terminations themselves. Dr. Stokes thus places himself, with Broussais, at the farthest extreme from Laennec, who prefers the term catarrh even for the acute affections of the bronchi, not admitting that their inflammatory character is certain. The middle course taken by M. Andral is, we think, the most natural. Considering inflammation as a complex phenomenon, consisting of several processes, he admits that each of these may exist separately, and produce affections distinct from inflammation. Thus, the secretion or the nutrition of the bronchi may be modified without inflammation, although inflammation, when present, essentially tends also to change these processes; and we may have a bronchorrhœa or catarrh, or an atrophy or hypertrophy of the bronchi, without any evidence that inflammation has preceded or accompanied it. These distinctions are the more important, because they are associated with marked differences in practice; and we shall find that Dr. Stokes, although he associates all affections of the bronchi with inflammation, recommends stimulant remedies in the apyrexial forms as strenuously as those who drop in the name an

hypothetical connexion that ceases to be practically useful. Inflammation must, indeed, be a variable process to produce even the changes of secretion enumerated in the following classification: how much does it differ in extent from that which others would call *disease*?

"In classifying the different forms of bronchitis, we may take for the basis of our division the different immediate results of irritation of mucous membrane and glands. In the first, or most ordinary form, we have a mucous, and afterwards a muco-purulent secretion; in the second, we have a secretion bearing the character of lymph, as in some of the forms of croup; in the third, the secretion is principally serous, as in the different forms of humid catarrh and asthma; whilst, in the fourth, there is little or no secretion, a disease which has received the name of the dry catarrh. It may be remarked that, in certain cases, the more copious and elaborated the secretion, the greater is the relief produced: thus, a mucous expectoration gives more relief than a watery; a muco-purulent more than a mucous; and a purulent, perhaps, more than any." (P. 46.)

The remarks on the bronchitis attending dentition are excellent.

"One of the simplest and mildest forms of this disease occurs about the period of the first dentition, and it seems likely that it is not then a primary disease, but rather the effect of the general constitutional disturbance, as we often observe it arising either along with or subsequent to the irritation of the gums, and subsiding after the adoption of means calculated to relieve these parts. Nor is bronchitis a constant attendant on dentition; for irritation may be localized in the abdomen, the head, or the skin, all which tends to show that the bronchial irritation is not the first link in the chain, and that its occurrence is accidental and secondary. That this doctrine is important in a practical point of view, no one can doubt; yet, whether it may be shown that the bronchitis be the cause or the effect of the fever, the detection of its existence is of importance, and its removal absolutely necessary. There is no difficulty in recognizing this affection, even though it should exist in an apyrexial form. Under such circumstances, the child may be observed to be irritable, his breathing hurried, with a slight wheezing in the throat and acceleration in the pulse. In more severe cases, there is [are] fever and cough, the nares dilate during inspiration, and the act of sucking seems to be performed with difficulty. If we examine the mouth, we often find it hot, and the gums dry and swollen, and one or two teeth may be observed coming forward. I have more than once found that such an attack supervened in children who had had copious dribbling for a length of time previously, and that the arrest of this secretion preceded the bronchitis and constitutional disturbance. In some cases, the cough has a decidedly croupy character, although during the intervals the breathing, though hurried, is not at all stridulous. This character of cough is often a source of great alarm, and may lead to an unnecessary degree of activity in practice. The symptoms, such as have been described, continue from four to five days, and often subside rapidly on the appearance of a tooth, although they may be liable to return upon every new irritation of the gums." (P. 51.)

Dr. Stokes divides cases of bronchitis into the primary, secondary, and complicated forms. The primary is the idiopathic disease; the fever, if any be present, being symptomatic. The secondary is where the inflammation of the lung is consecutive to some other disease, especially fever. The complicated form of bronchitis is where it accompanies other disease of the lung: this is not considered separately. The acute and chronic varieties of primary and secondary bronchitis, with their signs, symptoms, and pathological tendencies, are fully considered in the next fifty pages, which are most deserving of the careful perusal of the student and practitioner. They will scarcely admit of condensation, or we would wish to give our readers some account of them. We must content ourselves with a few extracts; and, if we now and then express our dissent

from certain opinions, this must not detract from the high estimation in which we hold this work, which would become a standard one if it only contained the matter of this section.

"But although, in its milder forms, the primary bronchitis is a common affection, yet the more violent attacks of this disease are far from being frequent, at least in those of mature age; for, in the great majority of the cases of acute bronchitis which come before us, we see it either as supervening on some chronic affection of the lung or as a secondary disease, such as that which arises in the course of the eruptive and continued fevers. Indeed, the more violent primary bronchitis, though common in the child, is a rare disease in the adult; while, with respect to the chronic forms of the affection, the reverse seems to be true, as this latter is common in the adult, and comparatively rare in the child. Acute primary bronchitis may terminate by resolution; it may pass into a chronic and increasing flux from the bronchial membrane, with or without hectic, giving rise to various alterations of the lung; it may cause death by a sudden obstruction of a large tube; it may be accompanied by a rapid or followed by a slow development of tubercle; it may pass into pneumonia, or terminate fatally by an excessive secretion into the bronchial tubes, or by hydrothorax." (P. 56.)

The following extract will serve to illustrate the remark we have made on the doubtful inflammatory nature of some affections which are classed under the name bronchitis.

"It is not easy to draw the line of distinction between this affection (chronic primary bronchitis,) and the second stage of the last variety, as we may observe it either as its continuation, with certain modifications, or as an affection in which there never have been the precursory inflammatory symptoms. We may get a good idea of the ordinary form of this disease, by considering it as a species of gleet of the mucous membrane, in which the inflammatory irritation, *if it exists*, is in many cases not so severe as to act sympathetically on the system; so that patients, under these circumstances, although labouring under cough and expectoration, may yet preserve a good state of general health. Nutrition may go on well; there may be no fever whatever, and even but little dyspnoea, unless upon considerable muscular exertion. In such cases, there is generally a more or less complete remission of the symptoms during the summer season, but, when winter approaches, the cough and expectoration become more troublesome, again to subside on the approach of summer. Thus may these patients continue for years, when the duration of the remissions becomes less, their completeness diminishes, and a permanent irritation and flux are established." (P. 57.)

Dr. Stokes divides the secretions from the bronchial mucous membrane, when in a state of "irritation," into transparent mucous secretions; opaque mucous or albuminous secretions, which may be either amorphous or moulded into the form of the tubes; muco-puriform secretions, puriform secretions, and serous secretions. The *transparent mucous secretion* generally occurs in the early stage of acute bronchitis, or when the disease, in any of its forms, undergoes an exacerbation: this has been long since described by Andral and others. The *opaque mucous secretions* generally succeed to the former kind, and may either appear in shapeless masses of a dull white colour, with a slight yellow tinge, more or less mixed with serum, or in plugs or cylinders of a tough white mucus, moulded into the shape of the bronchial tubes. In the case of a patient who suffered under a chronic affection of the chest, "the casts expectorated were several inches in length, and seemed to have occupied the bronchial tubes from about their third order to nearly their finest ramifications." The memoir of M. Reynaud on a plastic kind of inflammation of the minute bronchi, is also referred to. The *muco-*

puriform and the *puriform* secretions are properly considered together, for they are but degrees of one morbid condition. Dr. Stokes considers an absolutely puriform secretion to be very rare in any pulmonary disease, but particularly so in bronchitis. Yet we presume many of our readers, as well as ourselves, have known a patient expectorate real pus in considerable quantities, and, on examination after death, not only were the lungs sound, but the bronchial membrane entire, and generally pale throughout. Dr. Stokes says, that the muco-puriform expectoration most commonly takes place in the second stage of acute bronchitis, especially where this has occupied the smaller tubes, and produced a muco-crepitating rhonchus. If the antiphlogistic treatment have not been used early or carried far enough in the first stage, intense bronchitis passes into the second, marked by this muco-purulent secretion, which may be so abundant as to cause suffocation. But the change from mucous to muco-puriform expectoration may be sometimes considered a favorable one, leading to the termination of the inflammation. It may be viewed as such when the symptoms also show an improvement, and when the muco-crepitating rattle becomes larger, the air heard to penetrate lower, and the sound on percussion is clear even in the postero-inferior portions of the lung. The occurrence of purulent matter in the expectoration, with other symptoms, becomes a useful index to point out the time for changing the treatment from antiphlogistic to stimulating. *Serous secretions* occur in many cases of bronchitis, phthisis, and, we would add, other diseases of the lungs and heart. Sometimes they are super-added to some of the preceding kinds of expectoration, and Dr. Stokes seems to think the idiopathic pituitous catarrh of Laennec a rare disease; but, when the pituitous or serous discharge constitutes the chief symptom, which it does in many cases of *humoral asthma*, we do not see why the occasional mixture of a little concocted mucus with it should deprive it of its idiopathic character. In the article *Catarrh*, in the *Cyclopædia of Practical Medicine*, by Dr. Williams, the combination of pituitous with the dry catarrh of Laennec is adverted to as not uncommon, tough mucus being expectorated with the serous fluid; and, when the one is viewed as a profluvium, and the other as a passive congestion, both may be dependent on want of tone in the bronchial capillaries, and therefore may readily occur in different parts of the same membrane. Whether this view be correct or not, we think that Dr. Stokes would have done well to follow Laennec rather than Broussais in this instance. M. Andral, in his Notes, refers to cases in his Clinique Médicale, illustrating the pituitous catarrh of Laennec, which he considers simply a disease of secretion, although it may occasionally arise from and terminate in a hyperæmia.

The physical signs of bronchitis are fully described by Dr. Stokes, in all their combinations and relations. The perfectly clear sound on percussion becomes a difficulty in our author's explanation of percussion; and he conjectures that either the diminution of air in the chest, by the swelling and effusion in the bronchi, does impair the sound, but in a degree imperceptible to our ears, or that there is a simultaneous dilatation of the air-cells, which may compensate for the air displaced by the state of the mucous tissue. But, if we suppose, according to another view before noticed, that the sound depends on the freedom of the pari-

etes of the chest to vibrate, we can easily see why bronchitis, which does not alter the peripheral or external parts of the lung which are near the parietes, does not materially modify their vibrations. The following passage is a good specimen of the clinical application of principles of diagnosis, which the student will find admirably inculcated throughout this work.

"Yet, though percussion gives no direct result in bronchitis, its employment is of importance in the particular diagnosis. Thus, suppose that, after the existence of three or four days of fever, cough, hurried and difficult breathing, the chest still sounds well, the great probability is that the disease is bronchitis. The patient has had an acute inflammatory affection of the lung, and of but a few days' standing: this must be either bronchitis, disease of the serous membrane or of the parenchymatous tissue itself. Here the absence of dulness is of the greatest importance; for, were it a case of pleuritic effusion or of disease of the substance of the lung, the great probability is, that by this time a degree of dulness would be manifested: in the one case, the lung would be compressed, and its place occupied by a liquid effusion; in another, more or less obliteration of the air-cells would take place, from congestion or from inflammation. The absence, then, of dulness, with the existence of acute irritation of the lung, which has continued for several days, forms an important argument that the case is one of uncomplicated bronchitis." (P. 69.)

Bronchitis modifies the sound of respiration by, 1, the turgescence of the mucous membrane, a cause which principally affects the phenomena of the smaller tubes and air-cells; 2, the existence of an anormal secretion into the cavity of the tube itself; and, 3, the existence of spasm, the amount of which is exceedingly variable in different individuals. All these unite in forming the numerous varieties and combinations of Laennec's *sonorous*, *sibilous*, and *mucous râles*. The complete suspension of the sound of respiration in a part of the lung is another sign in bronchitis. Laennec ascribed this to an obstruction by mucus; our author thinks that spasm may have some effect in producing it. We do not see why any of the causes of the dry rhonchi, which are partial obstructions, when existing in a greater degree, may not become complete obstructions. Swelling of the membrane may do this, as we know it obstructs the nasal passage in recent coryza; concrete mucus may obviously do so likewise; and spasm may assist in producing the same thing, but, unless in the smaller tubes, we do not think it possible that any contraction of the circular fibres could close the bronchi. But these causes more frequently co-operate, both in the partial and in the total obstructions, and it would be refining too far to attempt to distinguish between them. So also with regard to the catarrhal rhonchi, we think that authors, Dr. Latham in particular, have attempted to make distinctions that are not found in nature. Thus, the sibilant rhonchus, so far from being, as the latter writer asserts, confined to the smaller bronchi and the more severe forms of disease, may be produced, by the above causes, in bronchi of any caliber, and when the affection is but slight and transitory. The universality of the rhonchi is a better index of the severity of the affection, yet Andral, with reason, objects to Laennec's assertion that the disease is almost always mortal when they are heard in every part of both lungs. (Notes, p. 49.) In the bronchial influenza of last winter, it was not uncommon to find the various rhonchi in every part of the lung: had this sign continued long, it probably might have confirmed Laennec's statement, as it did in a few cases of weak and broken-down constitutions;

but it was generally transient, coming on at intervals, and leaving signs of only a more partial affection.

Dr. Stokes's observations on acute *secondary* bronchitis, accompanying continued fevers, are highly valuable, as they confirm and enlarge the views of Laennec on this subject.

"The occurrence of bronchitis in cases of typhus is not constant; and, even when it exists, it is often slight and easily manageable. But, on the other hand, the pulmonary system may be severely attacked, and death induced by asphyxia from excessive secretion of the bronchial membrane. We commonly meet with this severe form under two circumstances; the one where the symptoms are manifest and distressing, the other in which the disease is latent and insidious. But in one respect both these forms agree, namely, that, at an earlier period than in the idiopathic catarrh, secretion generally comes on in enormous abundance, and is too often the immediate cause of death. As far as I have seen, the great majority of patients in fever, who have died with what is called effusion into the chest, owe their death to this disease, which has been overlooked or insufficiently treated. This fact illustrates the want of proportion which commonly exists in typhous fever between the functional alteration and the organic change. With symptoms of an apparently trifling character we may, after death, find universal bronchitis, great congestion, or pneumonia.

"In many cases, as Laennec has observed, a bronchitis shall exist through the whole course of a fever, yet so slight as to merit little notice. But in all these cases we must pay a careful attention to the chest; for we know not the moment at which his trivial disease may assume a dangerous character: and hence, when we discover any increase in the bronchitic symptoms, we should immediately direct our attention to the lung, and, if possible, arrest the progress of the local disease."
 "This form of disease is commonly coexistent with more or less of gastro-enteric inflammation, thus forming one of the most fatal varieties of fever in this country. In some instances the disease predominates in the respiratory, in others in the digestive system; and I have often observed a remarkable alternation of this predominance of disease between the thoracic and abdominal cavities. Thus, suppose today we observe the breathing hurried and laborious, the cough troublesome, the expectoration difficult, and the stethoscopic signs well marked, the chances are that the abdominal symptoms are less severe, the abdomen is less swelled and painful, diarrhoea has ceased, the tongue has improved, and that characteristic prostration which attends gastro-enteric inflammation has remarkably disappeared. In two or three days, however, the abdominal symptoms return, with decided diminution of those of the chest, and in the course of a single case several alternations of this kind may occur. In such instances death generally takes place by asphyxia, and I have known cases in which the gastro-intestinal mucous membrane was found in so favorable a state as to leave little doubt that, as far as its organic change was concerned, the patient would have recovered but for the bronchitis. I think we may state, with respect to the pathology of the mucous membranes in fever, that, although the gastro-intestinal mucous surface may be, and often is, affected, while but little, if any, disease exists in the respiratory organs; yet that the converse of this proposition is seldom true,—a point of the utmost importance in practical medicine, as bearing on the general, local, and specific treatment." (P. 81.)

The physical signs of this secondary bronchial affection are those of ordinary bronchitis, but they are often obscured and complicated by signs of a congested state of the lung. Thus, there may be some dulness on percussion, particularly in the most dependent parts, and the rhonchi, from the same cause, may be very small and indistinct in these parts. The signs, in short, approach to those of pneumonia, and so does the pathological condition of the lung, which after death is found completely engorged and bordering on hepatization. M. Andral adds his testimony as to the frequent occurrence of latent bronchial affections during fevers.

"One of the most unexpected results of auscultation is the knowledge of the existence of this remarkable engorgement of the bronchial mucous membrane in almost every case of *dothinentery*, without at the same time cough, oppression, pain in the chest, or other symptom, enough to cause the suspicion of disease of the respiratory organs. A sibilant rhonchus, variable in intensity and extent, is the most common sign of this affection. Sometimes this is replaced by a deep sonorous rhonchus, and it is sometimes mixed with a mucous. But in the last case there is generally cough, and, as this symptom manifests itself, the rhonchus becomes more and more humid. Lastly, in certain cases we find, towards the posterior parts of the thorax, on one or both sides, a subcrepitant rhonchus, unaccompanied by any other manifest sign of pulmonary or bronchial inflammation. I have seen this last rhonchus continue many days in patients under *dothinentery*, who scarcely coughed once or twice in twenty-four hours, and whose respiration seemed quite unembarrassed." (*Notes, &c.* p. 71.)

Secondary bronchitis is of frequent occurrence also in the exanthematous fevers, and may constitute their chief danger. We owe to Broussais much of the knowledge of the important share which disease of the mucous membranes has in these affections; but the subject has been also well investigated by Billard, Guersent, &c. on the continent, and the occurrence of a formidable kind of bronchitis in measles has been long since noticed by Dr. Hastings and others in this country. The bronchitis of measles and scarlatina has generally a more sthenic character than that of typhus; and it is more common, in the former diseases, to find the serous membranes involved.

Dr. Stokes agrees with Dr. Graves in thinking that the study of chronic bronchitis, which is secondary to other chronic diseases, has been too much neglected. Thus, as bronchitis accompanies those general affections of the system called fevers, so a similar condition of a chronic kind may occur in the gouty, scrofulous, syphilitic, and scorbutic disorders. We are not, however, prepared to admit an entire analogy between these two sets of cases. That fevers, which essentially involve the disturbance of a great many functions, especially those of circulation and secretion, should produce local congestions, inflammations, and disordered secretions of the great mucous surfaces, is as consistent with theory as it is proved in experience: but that diseases, which necessarily produce no such constitutional disturbance, and manifest their constitutional character chiefly by developing local disease in distant parts, or by modifying diseases that are otherwise produced,—that such diseases should severally, of themselves, excite similar congestions or inflammations in the mucous membranes, is as questionable in theory as it is unconfirmed by experience. When gout is attended with fever, this fever may develop a bronchitis, and the prevailing diathesis may give a character to it; or, when a scorbutic person takes cold, the bronchitis that succeeds may derive a character from the condition of the body; but it is not the gouty or scorbutic contamination in these instances that excites the bronchitis; and, although we may have gouty, syphilitic, and scorbutic varieties of bronchitis, we cannot think that these are generally associated with those respective disorders, as bronchitis and pulmonary congestions are with fevers. It is, however, highly important to mark these varieties, and to be aware of the aggravations which they produce. Dr. Stokes dwells chiefly on the bronchitis which sometimes accompanies syphilitic affections. This is sometimes acute, developed by a fever, and subsequently removed or lessened on the appearance of a copper-coloured eruption on

the skin. The chronic form shows itself in association with periostitis, sore throat, debility, night sweats, and other evidences of a state of syphilitic cachexia, in which the occurrence of cough may cause a suspicion of tubercles. If, however, on careful examination, no sign of these be found, mercury will generally soon shew its beneficial effects.

Dr. Stokes concludes the history of bronchitis with some very useful remarks on the mode of distinguishing the synpathetic cough, or that depending on irritation of distant organs, especially the gastro-enteric membrane. In such cases, the diagnosis will chiefly depend on the absence of signs of pectoral disease or any more direct source of irritation, as in the larynx, fauces, &c., and the existence of symptoms of an offending cause elsewhere: this is not unfrequently worms in the intestines. An instance is given where a severe form of intermitting bronchitis, which entirely resisted the ordinary treatment for many days, was cured by turpentine, syrup of cowhage and castor-oil, which brought away large quantities of thread-worms.

Treatment of Bronchitis. In the bronchitis of dentition, Dr. Stokes recommends free incision of the gums, mild purgatives, and ipecacuanha in minute doses. He ascribes many cases of the severe form of infantile bronchitis to the habit of keeping children within doors for months from their birth, which renders them very susceptible of bronchial irritation. "The necessity and safety of bringing the young infant into the open air in the course of a few days after its birth, is not sufficiently known, and many lives are thus sacrificed to an absurd, ignorant, and destructive prejudice." This may be in some measure true, but we think that it should be qualified with an exception in case of the winter season and cold weather. We are quite sure that many lives are lost in the injudicious attempts of some to render infants hardy before they possess that power of resistance to cold on which hardness depends. Dr. Stokes must be well aware of the experiments of Milne Edwards on the power of animals to produce heat according to their age, and also of the statistical results of the early registration of infants in France, in relation to this point.

For severe cases of puerile bronchitis, Dr. Stokes chiefly recommends tartrate of antimony, and, if the patient be robust, bloodletting, especially by leeches. To stop the bleeding from leech-bites, he recommends a fine pencil of nitrate of silver to be inserted lightly but rapidly to the bottom of the puncture, the blood having been first wiped out with lint. In the bronchitis of adults, also, he trusts much more to local than to general bloodletting, and thinks it more effectual when made in the upper than in the lower parts of the chest, as originally recommended by Broussais.

"It is scarcely necessary to remark, that, under certain circumstances, local bleeding may be repeated, even in an advanced stage of the disease. As, for instance, suppression of expectoration, when this coincides with increase of fever and irritation; increase of dyspnoea, when this is not produced by over-secretion, a point easily determined by the stethoscope; and, lastly, the occurrence of local dulness, which, in cases of intense bronchitis, may occur, and is owing to congestion of the substance of the lung." (P. 110.)

M. Andral gives a valuable note on the employment of bloodletting in bronchitis. Without adopting the statement of Laennec, that he had

never found bleeding indicated in the suffocative form of catarrh, he thinks it very questionable that this measure can in many cases exert any control over the engorged state of the bronchi, or the profuse secretion which they contain. He has seen death certainly hastened by this measure, and he concludes with a remark which his Broussaian countrymen would do well to attend to:

"It is not only because a part is red, swollen, or its secretions changed, that bleeding is indicated; for this anatomical condition is not always the result of the same lesion; and there is a case of this sort which is better removed by bark than by blood-letting." (*Notes*, p. 75.)

The remedy next in importance, in Dr. Stokes's estimation, is tartar emetic; but, in its exhibition, "certain considerations must always be attended to:" and, generally, the more sthenic the disease, and the greater the exemption from complications, especially with abdominal disease, the more safe and efficacious will be the remedy.

"It would seem, however, that mere prostration should not necessarily prevent us from having recourse to the remedy. Indeed, cases are recorded in which the patient, at the time he was ordered the tartar emetic, was almost in *articulo mortis*. I have never seen such a case, but have often found, in the advanced stages of acute diseases of the pulmonary parenchyma and mucous membrane, when other means have either failed or proved in a great measure inefficient, and where the patient was necessarily much debilitated, that the exhibition of the tartar emetic was followed by the happiest results. My experience at present leads me to conclude that, where the debility is merely traceable either to the disease or to antiphlogistic treatment, and not the result of its complication with decided abdominal inflammation, we may often have recourse to the antimonial solution; and we shall find that, when managed with judgment and caution, it will then, perhaps more than at another time, exhibit its almost specific power on the capillaries of the lung." (P. 112.)

The mode of exhibition adopted by Dr. Stokes at the Meath Hospital does not much differ from that of Laennec; viz. Tartr. Antimonii, gr. vj.; Aq. Cinnamomi, ʒvj.; Tinct. Opii acetatis, gtt. xij. Half an ounce of this is given every hour or second hour, so that the whole six grains may be taken in twenty-four hours. Three or four grains only will, however, often produce marked benefit. The medicine is found to act much in the manner described by Laennec, but Dr. S. has seldom found it necessary to increase the quantity beyond eight or ten grains in the twenty-four hours; but in all cases it must be left off gradually, otherwise the symptoms are apt to return. Our own experience agrees with these statements, and still more fully with those which follow.

"As far as I have seen, the effect of this medicine on bronchitis is twofold. It may either, as it were, cut short the inflammation, so as to leave hardly a symptom or sign behind it; or it may cause its early passage into the second or secretive stage. In the first case, the oppression and wheezing cease, the cough becomes trifling, the lividity disappears, the pulse falls to its natural standard, and the respiration is found everywhere pure, equal, and healthy, with the exception perhaps of a slight sonorous-mucous rale, which is now and then audible; the patient recovers his appearance, and declares that he is quite well. In the second case, after the use of the remedy for several days, we find the patient looking pale and miserable; he perspires copiously, and has often a rapid small pulse; the breathing, though less difficult, is hurried; and the cough, though less painful, is so frequent as to allow of but little rest. It is followed by a copious expectoration of opaque mucus or of a muco-purulent secretion. On percussion, the chest sounds clear, but the respiration is generally marked by mucous rales, of various intensities, in some cases combined with the sonorous, in

others passing almost into the crepitating character. At this period antiphlogosis can be used no longer, and a cautious but decided employment of the stimulating and tonic treatment must be had recourse to. But, even in this instance, though the exhibition of the tartar emetic has not, as in the former case, restored the lung to a state of health, yet it has not been without its advantages; inasmuch as experience shows that now the exhibition of stimulants and tonics will have the best possible effect. This fact, among many others, seems to me illustrative of a general rule in therapeutics, that in almost all local diseases the successful employment of stimulation depends on the previous use of a general or local antiphlogistic treatment." (P. 113.)

The art of discerning the transitions of disease from sthenic to asthenic, and of adapting new kinds of treatment to these changes, belongs exclusively to the skilful practical physician. No study of morbid anatomy can teach it; for morbid anatomy tells nothing of those conditions of the whole body, on the knowledge of which this art chiefly depends. Here, too, the mere stethoscopist will be at fault; for, although the physical signs may still inform us accurately of the mechanical condition of the injured parts, they will not tell us whether the vital action with which that condition is connected is of a sthenic or of an asthenic kind, nor what is the state of the general strength in relation to therapeutic agents. There is still much obscurity about the signs and symptoms which guide the experienced physician in these cases: he may acquire the art of deciding successfully, without being able to describe distinctly the circumstances that guide him in his decisions. In this respect the art is, to a certain extent, incommunicable, and can be derived only from long experience. But, probably, as our knowledge of the body and of its healthy and diseased properties increases, even these illusive and indefinite signs will become more intelligible and distinct, and, being accurately analyzed and explained, they may be made to furnish in clinical instruction that knowledge which can now be only obtained by long and painful experience. In his reiterated observations on the necessity of a change of treatment in the course of bronchitis, and on the circumstances in which a stimulating plan becomes indicated, we find Dr. Stokes endeavouring to give greater precision to this difficult part of practical medicine; and his remarks are well worthy of the attention of the young practitioner. The following propositions sum up those points which relate most directly to the treatment of pulmonary disease:

"First. That in some cases an antiphlogistic treatment may cut short the disease in its first stage; but that, in most instances, particularly in the affections of mucous membranes, its effect is to bring on the occurrence of the second stage.

"Second. That the principal circumstance on which the success of stimulant depends, is their having been preceded by antiphlogistic treatment.

"Third. That in many cases disease will continue for a great length of time, and yet (as shown by the result of treatment,) be in its first stage. Although chronic as to its period of duration, it is still acute when tested by the effect of treatment.

"Fourth. That this result is most frequently seen under the following circumstances: (a.) Cases of local disease, with but little injury to the general health. (b.) Diseases of tissues, where there is but little relief by secretion. (c.) Diseases of organs which have been neglected, or exasperated by too early stimulation.

"Fifth. That, in many cases where the disease has been neglected or exasperated, it will be necessary to precede all stimulants by an antiphlogistic treatment, either general or local." (P. 117.)

Of the local or specific stimulants, Dr. Stokes thinks that the decoction of senega, with carbonate of ammonia, camphorated tincture of

opium, and tincture of squill, is the most effectual. "Under its influence, the expectoration diminishes without increase of dyspnoea; the pulse becomes slower and fuller; the respiration in the upper portions of the lung becomes pure; and this change, extending from above downwards, we may find that, in a very few days indeed, all morbid signs will disappear from the lung." The success of this, and especially of more stimulating remedies of this class, will depend on their being employed at the proper time, when the inflammatory stage of the disease has in great measure subsided. It is a useful measure to conjoin with them external counter-irritants, of which blisters are the chief. Dr. Stokes recommends in the apyrexial forms of bronchitis, as well as in phthisis, sponging the chest with a liniment composed of Sp. Terebinth. ʒij.; Acid. Acetici, ʒss.; Vitell. Ovi. j.; Aq. Rosar. ʒijss.; Ol. Limon. ʒj. This, he thinks, acts not only as a counter-irritant, but also by being absorbed, and stimulating the mucous membrane.

Among the stimulants which are useful in the apyrexial and chronic bronchitis, the terebinthinate medicines and balsams are named, and Dr. Stokes suggests that strychnia, which is so efficacious in analogous affections of the gastric mucous membrane, might be beneficial here, not only by modifying the secretion, but in stimulating the bronchial muscles to contract. Quinine and iron may be often advantageously employed where the powers of life are low, and where the antiphlogistic plan has been pursued.

In the secondary bronchitis of typhus, the antiphlogistic means must not be employed so boldly or so long, whilst stimulants and blisters may be soon and freely resorted to; and no such complete or permanent effect is to be expected from the use of any measures, as in the idiopathic disease. We regret that we have not space for inserting more extracts from this part of the section, which, we think, comprises a much better account of the diagnosis and treatment of bronchitis than any previously published.

The organic changes of the tubes and air-cells, considered in relation to bronchitis, are, 1, narrowing of the caliber and obliteration; 2, dilatation; 3, ulcerative destruction of the tubes; 4, enlargement of the air-cells; 5, atrophy of the lung. Dr. Stokes does not contend for the inflammatory origin of these in every case, but the bulk of evidence is in favour of the connexion of these lesions with an inflammatory process in a majority of cases. We believe so, too; but, until the connexion be more fully traced and acknowledged, we question the expediency of classing all these cases together.

Adopting Reisseissen's account of the structure of the lung, which has been confirmed by M. Reynaud, both M. Andral and Dr. Stokes make the remark, that the bronchial tubes progressively subdivide, but never anastomose; their ultimate ramifications terminating in *culs de sac*, which are the air-cells; and on this character of structure several of their pathological changes depend.

Obstruction and obliteration of the bronchial tubes have been mentioned by writers on morbid anatomy, but M. Reynaud first described them as a not uncommon pathological condition; without, however, speaking positively as to their causes or symptoms, Dr. Stokes thus takes up the subject:—

vious that, when inflammatory action seizes on a bronchial tube, its effect, anatomically, will vary according to the diameter of the canal. In the , whose parietes are guarded with strong cartilaginous plates, nothing but al hypertrophy of the mucous membrane could cause an obliteration; e minuter tubes, whose perviousness is not so provided for, the same promuch sooner produce obliteration." . . . "In the larger tubes we find mucous membrane endowed with villousities and glands; but, as we o the substance of the lung, this tissue gradually loses its original characat its ultimate point, if it be not completely serous membrane, it closely to it in appearance and function. If we now add these considerations to ng, we get at once a sufficient explanation of the point in question. As d remarks, we may expect the plastic inflammation the more the affected achas to white structure; and hence another cause of the greater liability te tubes to obliteration." (P. 137.)

ld appear that we may consider this obliteration of the bronchial tubes in of view: first, as commencing in the finer, and proceeding by continuity o the larger tubes; and, secondly, as the result of obstruction of a large the consequent obliteration of the tubes to which it gave birth, by a pro-to that observed in arteries after ligature. Of these species, the first is quent and important; and I cannot help thinking that its investigation y go far to clear up the long-controverted point as to the nature and origin , but also throw light on other subjects of thoracic pathology." (P. 141.)

akes objects to M. Reynaud's distinction between the cases in iteration is caused by simple adhesion of the sides of the tubes, resulting from obstructing matter effused within them. But elined to think that the distinction is a just one, inasmuch as r is secondary to some other lesion: while the latter is more e result of a plastic inflammation of the bronchial tubes. And ould also remark, that neither of these authors have sufficiently o another cause of obliteration of both tubes and cells, which inations lead us to believe to be far from uncommon. Dr. s fully dwelt on obliteration of some tubes as a cause of the of those tubes and cells adjoining them, but he has not noticed rse of this, the obstruction and ultimate obliteration of tubes by the pressure on them of other tubes and cells which have e dilatation. Yet not only this must tend to such encroachment althy tissue, but every other lesion that can permanently change e position of the parietes of the tubes and vesicles with regard ther. Thus, Andral observes, that tuberculous, and we would e deposits, partial indurations, interlobular thickenings, and ilar lesions, must more or less press on the adjoining tissue; o doing, they often obstruct some of the bronchial tubes which gh it, which may become obliterated in consequence. The hich these tubes lead, no longer receiving their supply of air, ollapsed also; and, to fill their space, the adjoining tubes and e be unnaturally distended: here we see an additional reason ommon complication of tubercular deposits with pulmonary a and dilated tubes.

akes introduces the subject of *dilatation* of the bronchial tubes ing the analogy between these tubes and the arteries, and e existence of dilatation of the former from the supposed e of aneurism. Now, we think that this supposed analogy is

not only imperfect, but also calculated to mislead the mind as to the true character of dilatation of the bronchi. There is such a difference between the general and special anatomy and physiology of the arteries and those of the bronchial tree, that the assistance derived from analogies of their respective pathological states must depend rather on their mechanical resemblances as tubes, than on any close similarity of structure. With regard to the cause of dilatation of the bronchi, Dr. Stokes supposes, with Williams and Roche, that inflammation, which by diminishing the cohesion of elasticity of their tissues, makes them yield to the distending air in cough and respiration, is the chief; but he adds that this inflammation has another effect, hitherto unnoticed, which may lead to the same result; it paralyzes the bronchial muscles.

"There can be no doubt of the fact, no matter how we explain it, that, where muscular structures are in close connexion with other tissues which are inflamed, their functions suffer, and we observe, first, an increase of innervation, as shewn by pains and spasms, and next, a paralysis more or less complete. When we come to speak of empyema, diaphragmitis, and inflammation of the heart, we shall see of what importance these considerations are. At present, it appears that we may hope to elucidate some points in the symptoms and treatment of bronchitis by having recourse to this view. May not this paralysis explain the difficulty of expectoration in certain cases; the stasis of matters in the tubes, and the liability to asphyxia in bad catarrhal fevers? and we might further enquire how far its existence should lead us to modify our treatment, and seek for some agent which would stimulate the bronchial muscles to contract. Abercrombie relates a case of distention of the bowels in which galvanism had the best effect, and I have already alluded to the use of the same agent in pulmonary disease by Drs. Philip and Forbes. Now, as the lung derives a large portion of its nervous supply from the cerebro-spinal system, we might hope, by the exhibition of such remedies as strychnine, to act beneficially upon it when its innervation was injured." (P. 151.)

These views, although at present theoretical, are quite rational and highly deserving of the attention of the scientific practitioner. We have seen many facts confirmatory of the position first maintained by Dr. Abercrombie, that inflammation frequently causes in adjoining muscular structure, first, increased and afterwards diminished action; and the diminution may in some cases amount to a perfect and permanent paralysis. We would, however, also remark, that there may be diminished action, and even paralysis without previous inflammation; and, with regard to the particular case under consideration, we have seen dilated bronchi with an uncommon development of the circular fibres.

The remainder of this portion of the section is devoted to the complications and diagnosis of dilatation of the bronchi; it contains some good matter, but lacks arrangement and condensation. We can only give the recapitulation, which our readers will perceive is not a brief one.

"1st. That the cases of this disease which have been described by authors may be divided into three classes: (a) cases in which symptoms of chronic catarrh, with copious expectoration, have existed for a number of years, varying from ten to fifty or even more, and without the constitutional symptoms of phthisis. (b.) Cases presenting the symptoms of phthisis, in which the constitution suffers severely; the disease may last from five months to five or even ten years. This last case has been principally observed in adults. (c.) Cases which may be termed acute. These are to be observed in children after whooping-cough, and the disease has occurred in the space of three months.

"2d. That we meet this affection as an uncomplicated disease, or in conjunction with other lesions, of which obliteration of the bronchi and tubercle are the most common.

"3d. That dilatation of the bronchial tubes may be accompanied by an atrophy of the air-cells, and thus the affected side of the chest be diminished in volume.

"4th. That, in the same case, we may observe a predominance of dilatation in the bronchial tubes of one lung, and of the air-cells in the other.

"5th. That the continuous dilatation may affect a single tube, without presenting any marked physical signs.

"6th. That we may even have numerous small dilatations without other phenomena than those of ordinary bronchitis.

"7th. That, when the continuous dilatation is decided and extensive, the phenomena which have been observed are the flowing respiration and extended resonance of the voice. In some cases, too, the veiled puff has been observed by Laennec.

"8th. That when the local dilatations are decided, the phenomena are those of appurating cavities communicating with the tubes.

"9th. That, although it is extremely difficult, on account of the similarity of the physical signs, and in some cases of symptoms, to distinguish this disease from phthisis with suppurating cavities, yet, by observing the mode of combination, and the succession of the signs, the rate of increase of the cavities, and the connexion of these with the history of the case, we may, in some cases at least, arrive at a diagnosis which shall be correct.

"10th. That, where a number of tubes are detailed in one lobe, the case may be distinguished from tuberculous anfractuosities by the clearness of sound on percussion.

"11th. That, in cases where we have had an opportunity of examining the patient from an early period, the fact of dulness not having preceded the signs of a cavity may enable us to distinguish the disease from phthisis.

"12th. That, in the same manner, the combination of extensive tracheal respiration with clearness of sound, seems to be diagnostic of dilated tubes." (P. 170.)

Dr. Stokes justly objects to the term *emphysema* of the lungs, applied by Laennec to general dilatation of the air-cells; for *emphysema* being generally understood to signify effusion of air, is not applicable to many cases of the affection in question in which there is no evidence of any entry of air into the interstitial tissues; and the essential character of which is an enlargement of the natural vesicles of the lungs. But when he says, "the lung becomes enlarged," he excludes one of the forms of the disease, much dwelt on by Andral, that resulting from atrophy or wasting away of the solid parietes of many of the cells; so that, without dilatation or enlargement of the whole lung, many cells break down into a few large ones, and present that coarseness and lightness of texture which is remarkable in the lungs of old people. Dr. Stokes admits that the disease may originate, as supposed by Laennec and others, in the obstructions to the exit of air from the cells distended in forcible inspirations, occasioned by the swelling of the tubes or by viscid mucus in them; but he thinks that spasm and irregular action of the circular fibres may be an additional cause of obstruction, tending to preserve a dilated state of the cells. Dr. Williams has suggested another probable cause in the moveable pellets of viscid mucus plugging up certain tubes at the beginning of inspiration, so that all the air introduced by this act must pass into the adjoining tubes which remain open, and over-distend the cells to which they lead. We think that this latter explanation may be extended further to the still commoner case of partial obstruction of the

tubes: for, if the air at each inspiration finds much readier access to some cells than to others, the distending force of each inspiration (particularly of those that are sudden,) will be more felt by these cells, which will consequently become more distended. To render this distention permanent from whatever cause it may proceed, there must be such a continued application of the cause as to make the natural properties of the tissue adapt themselves to it, or some morbid modifications of these properties; such as loss of elasticity, rupture, thickening, &c., which may at once fix the cells in their distended state. Further, there is a remark of Laennec, which is worthy of attention, as it seems to us to suggest another cause of dilatation of the air-cells. In the case of persons suffocated by the gases of cess-pools, he has remarked the lungs to be very large, although perfectly crepitous, and asks whether this may be from a general dilatation of the air-cells, a primary form of emphysema. Mr. Swan, in his experiments on the nerves, describes an emphysematous condition of the lungs to ensue after the eighth pair of nerves in the neck have been divided. Do not these facts, to which we could add others, render it probable that the sensation and motion of the bronchi are essential to the perfect performance of the expiratory act, and that a paralysis of these properties, by rendering this act imperfect, may be a cause of dilatation of the air-cells?

We can only give, in this place, Dr. Stokes's general conclusions respecting emphysema; they are as follows:

"1st. That the disease consists essentially in an enlargement of the air-cells. 2. That the rupture and coalescence of several cells is not a constant occurrence. 3. That the disease increases the volume and rarefaction of the lung. 4. That it may occur uncomplicated with any affection except bronchitis, or exist along with other diseases which are equally chronic. 5. That it may coexist with great dilatation of the tubes. 6. That it may be partial or general. 7. That percussion gives a morbidly clear sound when the disease has attained a certain extent. 8. But that the cells may be so enlarged as to give feebleness of respiration without change on percussion. 9. That the physical signs of bronchitis which occur, though pointing out the existence of disease in the smaller ramifications, are not characteristic of the affection. 10. That the stethoscopic indication is the want of proportion between the sound of vascular expansion, the results of percussion and the efforts of inspiration. 11. That a most important source of physical signs is to be found in the increased volume of the lung. 12. That this increase of volume can be ascertained by measurement of the chest, by the displacement of the mediastinum, by the depression of the diaphragm, and by the lateral displacement and the depression of the heart. 13. That although in this disease, as in empyema, there is pressure from within, yet that it differs from the latter affection in the absence of paralysis of the inspiratory muscles, as shewn in the comparative states of the intercostal muscles and diaphragm. 14. That the physical signs from auscultation are greatly modified by the degree of yielding of the thoracic parietes, the characteristic feebleness of respiration appearing to be directly as the amount of resistance to the increased volume of the lung. 15. That, in the same way, the signs resulting from the displacement of the mediastinum, heart, and diaphragm, will vary with the amount of resistance of the thoracic parietes, and be more obvious the greater the resistance. 16. That the intercostal spaces are not protruded in this disease, but preserve their relative positions with respect to the ribs. 17. That the cases of the disease may be divided into two classes, viz. those in which the diaphragm is unaffected, and those in which it is depressed. 18. That, in the first class, the abdomen is collapsed, and without tumefaction or dulness of sound in the epigastric or right hypochondriac regions. In these cases, the heart is found in its natural posi-

19. That, in the second class, the reverse occurs: the liver is depressed and the heart so displaced, as that it has been found to pulsate so low as the ninth intercostal space. The postero-inferior portions of the chest sound clear even to the last rib. 20. That, under these circumstances, the diaphragm being flattened, its contraction acts in diminishing the circumference of the trunk in the region between the eighth and tenth rib, so that we observe expansion of the upper portion of the chest and of the umbilical region, while the portion above mentioned manifestly contracts. 21. That the volume of the lung varies remarkably at different periods. 22. That, when the disease is in its greatest, all the physical signs are most evident. 23. That the cause of its increase is an exacerbation of the bronchitis. 24. That, under treatment calculated to remove the local irritation, the vesicular murmur may return, and the volume of the lung is diminished. 25. That these facts are in favour of the opinion that the disease is susceptible, if not of cure, at least of great alleviation." (P 201.)

The researches of Dr. Stokes on the pathology of pulmonary emphysema are more satisfactory than those of M. Louis and the late Dr. Jackson. We shall give an analysis of M. Louis's paper in our notice of his work in which it appears, (*Mem. de la Soc. Med. d'Observation*, t. 1.) and will merely state that he doubts the connexion of emphysema with pulmonary catarrh, because the explanations of Laennec were found inapplicable to the cases which he examined; no mucus being ever found in the dilated air-cells, and the dilatations affecting especially the margins of the lobes, which are rarely, if ever, the seat of pulmonary catarrh. The views which we have noticed extend beyond those of Laennec; and it may be remarked, that the marginal or terminal cells of the pulmonary tissue will be especially liable to distention from those violent but partial inspirations which have been supposed to occasion pulmonary emphysema. The disease of the heart and signs of obstructed circulation, noticed by Louis, as well as by preceding writers, as frequent concomitants of emphysema, we consider to be in a great measure caused by the mechanical effect on the great vessels, of the rigid and distended lung which is continually pressed on them by the forced vibrations, so characteristic of the advanced stages of this disease. Laennec had a more extended knowledge of the pathology of pulmonary emphysema than M. Andral, and subsequent writers seem disposed to allow him; for he distinctly describes loss of elasticity, hypertrophy, and occasional atrophy and rupture of the cells, as connected with the permanent forms of the lesion. We do not find in the "notes" any important addition to the original matter of Laennec, except the remark from M. Louis regarding the state of the subclavicular region in emphysema of the lungs. This presents a prominence which corresponds remarkably with the hollow which is usually seen above and below the clavicles. M. Louis considers this state peculiar to those who have emphysematous lungs; and in this he is confirmed by M. Andral. We can only notice very briefly the subject of *Pneumonia*. Dr. Stokes thinks that there is no absolute line of distinction between bronchitis and pneumonia, and that it would hardly be a misnomer to call pneumonia a bronchitis of the terminal tubes. This is too wide a question to enter on here, but we may express a doubt whether such an approximation of two diseases that are in most instances distinct in character and relation to remedies as well as in seat, be expedient or philo-

sophical. It is quite true that a great portion of the parenchyma, which is the seat of pneumonia, consists of the minute bronchi and cells; but, besides the difference which the intervesicular texture and plexus of vessels produce, the circumstance of the inflammation pervading tissues closely packed together instead of affecting a membrane lining a number of separate tubes, is enough to constitute a generic difference which as it affects the characters, so it should be represented in the names of the two diseases. It should never be forgotten too that the function of the parts affected in bronchitis is quite distinct from that of those affected in pneumonia: the bronchial tubes merely convey the air, but their finer ramifications and terminations are the seat of the changes which this air effects in the blood: the former are supplied merely by their nutrient vessels, the bronchial arteries; the latter have besides the great plexus of the pulmonary vessels distributed upon them through which the whole blood of the body passes. These points are strongly dwelt on by the writer of the article "Pneumonia" in the Cyclopædia of Practical Medicine, who considers the essential seat of pneumonia to be this great pulmonary plexus, but that its anatomical and perhaps its pathological characters may vary according as these inflamed vessels extend their effects chiefly to the air-cells or to the intervesicular texture. The late researches of MM. Hourmann and Dechambre on the pneumonia of old people at the Salpêtrière, and which we have noticed in our preceding numbers, seem to favour this view. They have shewn that there is a non-granular form of hepatization, in which the intervesicular and interlobular tissues are the chief seats of effusion, and this is just what Dr. Williams, the author of the article just noticed, has described.

Dr. Stokes thinks that there is a stage of pneumonia prior to that of engorgement, described as the first by Laennec, in which the pulmonary tissue is drier than usual, not at all engorged and of a bright vermilion colour. We believe that we can confirm our author's opinion on this subject, having repeatedly found, in the vicinity of a tissue in the engorged degree of inflammation, a florid vascularity without any liquid effusion; and in two or three cases we have observed with the general symptoms of an attack of pneumonia, a louder or puerile respiration, which is supposed by Dr. Stokes to accompany this degree of inflammation, which preceded the occurrence of crepitation. Such a sign is what might be expected: the enlarging vessels diminish the caliber of the minute tubes and cells, and bring them into the condition of the tissue of a child's lung: a farther degree of diminution from the same cause and from the addition of the viscid mucous secretion constitutes the elements of the crepitation of the stage of engorgement. We suspect that this early sign of inflammation is of very short duration and is to be heard without crepitation only during the first two or three hours after the attack. In fact it may be regarded as a degree of the stage of engorgement rather than as a separate stage; for there is no evidence to prove that, in the stage of engorgement, blood is, as Dr. Stokes assumes, effused into the air-cells. It is quite important, however, to know of the existence of a first degree of inflammation without crepitation, although our observations are rarely early enough to discover it. A local puerility of respiration, accompanied by fever and the general symptoms of inflammation

the chest, may be therefore taken as the indication of an incipient pneumonia.

M. Andral, as well as Dr. Stokes, has met with cases presenting the atypical symptoms of pneumonia without crepitation or any of the ordinary physical signs. The former views these as cases of central pneumonia, and that, although the sound of vesicular respiration is audible in very part of the chest, yet that it presents this character, that the expiration is unusually distinct, and continues to be so until resolution is completed. *Notes*, p. 156.

We have a word to offer on the following passage:

"On the subject of Laennec's first stage, it is to be observed that it does not necessarily precede hepatization. We may have complete solidity produced in a lung that has never presented the crepitating rale, and the disease passes on into the stages of suppuration and abscess. This circumstance, so important in diagnosis, is met with in certain cases of the typhoid pneumonia, in which a sudden and extensive congestion of blood affects the lung. It may then occur that a lobe which to-day was perfectly permeable, and presenting no morbid signs, shall, in twenty-four hours, be solidified, and present dulness, with absence of vesicular murmur, broncho-phonia, and bronchial respiration." (P. 311.)

We can testify to the truth of these last facts, but we interpret them differently. We would rather say that these cases were still in the first stage, and that the second stage, hepatization, does not necessarily precede the third, suppuration. That we may not be misunderstood in the terms used, we would restrict the word hepatization to mean that solid state of the lung which, in weight and firmness, really does resemble liver; and we cannot agree with Dr. Stokes that this solidification "arises, not from any deposition of lymph, but merely from an excessive congestion of blood;" and that, therefore, this is only the maximum of the stage of engorgement. No one can closely examine a truly hepatized portion of lung without perceiving in its lighter colour, especially in the granulations, the sign of a preponderance of solid albuminous matter, which is never to be found in the merely engorged lung, and which mere congestion of blood could not produce. But we do believe, from repeated observation, that mere congestion or engorgement of blood in the lung may, when in excessive degree, produce dulness on percussion and bronchial respiration, and we conclude that Dr. Stokes's examples of solidification were of this kind. We have found a condition presenting these signs, not only in fevers of the congestive and ataxic kind, but also in the advanced stages of diseases of the heart, come on in the course of a day, and in a few instances disappear as rapidly; but we cannot suppose with Dr. Stokes that no crepitation accompanied the commencement of this congestion; although its rapid increase produced in a few hours a total obstruction of those tubes which are the seat of this crepitation.

Dr. Stokes considers that the rarity of pneumonic abscess has been over-rated. He gives a very interesting example in which the patient recovered from the abscess, but dying of pneumonia a year after, a cicatrix was found in its place. He describes three forms of pneumonic abscess, which we may state thus: 1, the true phlegmonous encysted abscess; 2, purulent cavities communicating with the tubes without cyst; 3, intervesicular or interlobular suppuration, in which "the lung lies bathed in pus, and we have an abscess under the pleura, but external to the lung."

The author's observations on the symptoms and general diagnosis of pneumonia are excellent.

"The true source of diagnosis is our finding the combination of irritation of the respiratory system with the physical signs of pneumonia; of which signs it may be said, that although, taken singly, any of them may occur in other affections, yet that, in pneumonia, their mode of succession is quite characteristic." (P. 320.)

Dr. Stokes has not found the viscid rusty sputa at all constant in pneumonia.

"But, in the suppurative stages, the expectoration is generally characteristic: it then occurs under two forms; in the one we observe a purplish red muco-puriform fluid, while in the other we find that the matter coughed up has all the characters of the laudable pus of authors. It is of a light yellow colour, perfectly homogeneous, and of the consistence of cream. I have never seen this expectoration, unless in the suppurative pneumonia, and it forms almost the only instance in which the expectoration of pure pus is met with." (P. 321.)

We have seen pure liquid pus expectorated in considerable quantities in a case of uncomplicated bronchitis. Dr. Stokes very justly remarks, with regard to bronchial respiration as a sign of hepatization, that for its production there must be expansion of some part of the affected lung; otherwise, there would be no passage of air through the bronchi. This remark does not, however, extend to bronchophony, when that is to be heard.

Typhoid pneumonia is described by our author as of frequent occurrence in Dublin, being at times almost epidemic. That complicated with typhus fever is remarkable for its latency. There may be no general symptoms of its presence, and the aid of the stethoscope is necessary to detect the presence of the disease. But, equally as with typhus fever, gastro-enteric and erysipelatous fever, pneumonia of the same kind may occur with delirium tremens, from excess. This has been noticed, in the article in the *Cyclopædia* before quoted, as the direct effect of excessive indulgence in intoxicating liquors, especially when conjoined with exposure to cold.

Dr. Stokes's observations on the treatment of pneumonia are well worthy of attention, but we doubt much if some of them will be found generally applicable. The following remarks, for instance, are probably more true in relation to the poorly-fed peasantry of the sister kingdom, than with the labourers of this country.

"I find the bold and repeated use of the lancet to be unnecessary in the great majority of cases, and I am convinced that in general a single, or at most two bleedings, will be sufficient. Out of many hundred cases, I have had only one in which it was necessary to bleed more often than twice: in this instance there was complication with hypertrophy of the heart. The true principle seems to be, that general bleeding is to be considered only as a preparative for other treatment, and not the chief means of removing the disease." . . . "I am most anxious to press the importance of local bleeding in the treatment of pneumonia, for I consider it as the principal remedy. For this purpose either scarification or leeches may be employed; but, if the latter be used, I would in all cases recommend that the cupping-glasses should be employed in conjunction with them. In this way the general fever and arterial excitement having been previously reduced by the lancet, we may, directed by the stethoscope, continue, day after day, to detract blood from the affected part, while the patient's strength can be supported by food, and even wine, if necessary. In the treatment of the typhoid form, the best practice is to use wine in conjunction with local bleedings." (P. 343.)

We do not often find that, in sthenic pneumonia of more than twenty-four hours' standing, the general fever and arterial excitement can be reduced by a single bleeding; and, although we fully agree in the beneficial effects of local bloodletting, we have in most instances found venesection much more effectual during the increase and continuance of the crepitating rhonchus with general inflammatory fever. There is a suddenness of impression produced by general bloodletting through a large orifice, that, if judiciously applied in the early stage of pneumonia, tends to relieve the congested lungs far more effectually than any drainings from leech-bites. Extensive cupping may perhaps do nearly as well, but it is more painful and less manageable, and we think is better as an adjuvant in this stage. We agree with Dr. Stokes, that there are few cases in which we must not at once add to bloodletting the aid of either the antimonial or the mercurial treatment, and we believe the circumstances to determine our choice between these have been truly stated by him.

"That the success of the antimonial treatment depends on, or is favoured by, the inflammatory character of the fever, the early stage of the disease, the absence of complication with other diseases, the fact of the patient having borne bleeding well, and the firmness of the coagulum: the more the case presents these characters, the greater will be the likelihood of the tartar emetic acting favorably. But, in the typhoid, secondary, and complicated cases, in those where the powers of life have been previously injured, where bleeding cannot be used with boldness, and where stimulants are required, the exhibition of the tartar emetic in full doses is very hazardous. The mercurial treatment is to be preferred, from its greater safety, and, in this (form of) disease, more than equal efficacy." (P. 344.)

Dr. Stokes mentions change of position as a very necessary measure in prolonged cases of peripneumony, in order to relieve the diseased portion from hypostatic congestion. "In many cases where remedies seemed to have little or no effect, attention to position has been followed by a rapid recovery." When, after the cessation of fever and local irritation, the lung continues in a congested state, with copious bronchial secretion, the treatment recommended in the second stage of bronchitis (pneuma, squill, &c.) is often effectual.

The chief peculiarities in the treatment of typhoid pneumonia are stated to be these:

"1. That general bloodletting is to be used with extreme caution. 2. That the mercurial is in general to be substituted for the antimonial treatment. 3. That counter-irritation may be employed at an earlier period. 4. That the vital forces are to be carefully supported. 5. That as gastro-intestinal disease frequently complicates the pneumonia, close attention must be paid to the abdominal viscera. 6. That stimulants are to be used with greater boldness, and at an earlier period." (P. 350.)

The next section is misnamed "Perforating Abscess of the Lung," for it contains cases of purulent collections formed exterior to the lung, but afterwards perforating its tissue, and evacuated by the bronchial tubes. 'Abscess perforating the lung' would be a less objectionable title. The following are the chief cases:—1. Abscess of the thoracic or abdominal integuments passing across the pleura by adhesion, and forming a fistulous communication with the lung. 2. Purulent collections in the serous membrane, opening directly into the lung. 3. Hepatic abscess perforating the diaphragm, and being discharged through the bronchial tubes.

Of these, the last is the most frequent. We lately saw a case in which a collection of pus between the diaphragm and the stomach communicated by fistulous openings with the latter organ, and through the diaphragm and pleura with the lung: pure pus had been voided the day before death, apparently by both coughing and vomiting.

Before we enter on the section of Dr. Stokes's book devoted to "Tubercle of the Lung," in which he treats chiefly of the diagnosis and treatment, and in a very masterly way, we would shortly notice some of M. Andral's notes on the nature of tubercle. He approves of the term "*accidental production*," as applied by Laennec to tubercle and similar results of alteration of the nutritive process of tissues, and, more strongly than in his former works, deprecates the attempts of the Broussaïans to refer these lesions merely to *irritations of secretion*. Irritations of every degree may exist without developing tubercle; and tubercle is produced where there is no proof that irritation has preceded it. Inflammation may no doubt accelerate or determine the production of tubercle, where that modifying influence which is the real cause of tubercle is already present; but it is then only an accessory or secondary agent, and the condition which is essential is yet a subject for future research. It is well known that M. Andral was the first among modern pathologists who adopted the opinion formerly expressed in the *Phthisiologia* of Morton, that tubercle is a peculiar kind of morbid secretion from the blood, and that a depraved condition of this fluid, arising from various causes, is the chief element in the tuberculous diathesis. This view, so important in its tendency to direct attention to the constitutional origin as well as the local development of tubercle, has been subsequently adopted by Drs. Carswell and Clark; and the latter physician has prosecuted the subject a step further in the attempt to point out the functional disturbances which precede and accompany the development of tuberculous diseases.

With regard to the nature of tubercle itself, it seems to have been Laennec's decided opinion that it is endowed with a special vitality, that it grows by intussusception, and softens by its own intrinsic properties. This would imply that it is organized, yet Andral and others have failed to discover in it either vessels, laminæ, cells, or fibres, but merely an homogeneous substance, like those amorphous concretions which result from a kind of solid precipitation from the animal liquids. But M. Kuhn has recently announced that he has, through the microscope, discovered in the early condition of tubercle a distinct organization in an extremely fine filamentous web, of gelatinous appearance, which contains an agglomeration of yellowish particles, and contained in a muco-membranous envelop. These fine filamentous threads M. Kuhn calls the *tuberous tissue*, believing it to be the matrix of the albuminous particles which form within it, and constitute the bulk of tuberculous matter. It ramifies afresh through the particles thus produced, and forms more around them. In the early stage of tubercles, these particles float in a clear mucus; but afterwards this mucus is absorbed, the particles approximate, and form a crude tuberculous mass. In the early stages of phthisis, when the expectoration appears to the naked eye to be simply that of bronchitis, M. Kuhn asserts that he has, with the microscope, discovered in the sputa portions of the same filamentous tissue. Should this be confirmed, it would, as M. Andral observes, be a precious disco-

very for diagnosis; but these researches do not appear to have been repeated by any one. The notion of Broussais, that pulmonary tubercles are degenerated lymphatic glands, is quite obsolete. In regard to it, M. Andral remarks that he has sometimes found lymphatic vessels in the lung distended with pus and a matter like tuberculous, without giving anything of the appearance of pulmonary tubercles. In noticing the opinion of Dr. Carswell, that pulmonary tubercle has its seat in the air-cells, being secreted chiefly by the mucous membrane, at first dense and grey, afterwards more liquid and yellow, M. Andral observes that, as tubercles unquestionably are produced in the substance of other organs, it is most probable that they are so in the lung likewise. He considers the cases cited in support of Dr. Carswell's opinion as exceptions, the more general rule being that it is within the very texture of organs, in the cellulo-vascular tissue, which is the source of nutrition and secretion, that tubercle is chiefly formed. This is also the opinion of M. Lombard. For our own part, viewing yellow tuberculous matter, and the various grey indurations that precede it, as nothing else than a degraded albuminous lymph, possessing a very low vitality or totally destitute of it, and therefore incapable of further organization, we see no reason why it should not be produced in all situations where coagulable lymph may be produced. So, in truth, where, under the influence of inflammation, we find fibrinous lymph occasionally effused, on serous and mucous membranes, in cellular tissue, within the parenchyma of organs, nay, even in clots of blood, there also we have seen tuberculous matter make its appearance under those circumstances which cause its production.

On the connexion of inflammation with tubercle, M. Andral confesses that, the more he has observed and studied the subject, the nearer is he brought to the opinions of Laennec. Considering tubercle to be the result of a peculiar modification of nutrition and interstitial secretion, he sees no reason that irritation should be an essential element of the process, any more than it is necessary for common nutrition or for the secretion of bile. Irritation, in all its forms and degrees, often exercises a great influence on the production of tubercles, but only as an occasional cause: it cannot produce tubercles without a predisposition; but the predisposition may lie dormant until irritation of some kind brings it into play. This view still falls short of that of Laennec, who, referring the origin and growth of tubercles to a sort of seed-like germination of intrinsic vitality, could not suppose them to be under the influence of vascular action, as secretion and nutrition are. We question whether M. Andral's mind is settled on this point, and whether his disposition to concede more to the dead (Laennec) than to the living (Broussais) may not bias him. The individuals most disposed to this modification of nutrition are, according to M. Andral, those in whom the "organic development" has not been complete; those, in other words, who manifest signs of the lymphatic temperament. Tubercles may, however, be produced in cases where there are no such external signs of the predisposition; but, "*that the predisposition exists even in these cases, is proved by the appearance of tubercles, which would not take place without it.*" (Notes, p. 221.) Such a specimen of reasoning in a circle is not to be found in M. Andral's earlier works. We can more fully go with him in the reasonableness of the next remark: "Although irritation does not

always precede tubercles, yet it constantly follows them. In every case where an organ has been invaded by these products, there takes place around them a reaction, the result of which is an inflammatory process, and the end of which is the expulsion of the tubercles." (*Ib.*)

Dr. Stokes far exceeds all his predecessors in the minuteness and accuracy of his observations on that touchstone of diagnosis, the signs of the early stages of phthisis. We strongly recommend them to the attention of all our readers; for, whether young or old in the practice of auscultation, they will be sure to derive instruction from a careful perusal of them. Their minuteness may discourage many; but we can assure our hasty brethren that, although they may now and then make off-hand hits in other cases of auscultation, they never can become accurate in distinguishing the early stages of tuberculous disease, without being very patient and minute in their investigations. Dr. Stokes enumerates the physical signs of pulmonary phthisis as follows:—1. Signs of irritation; *a*, of the mucous membrane; *b*, of the air-cells; *c*, of the serous membrane. 2. Signs of solidification. 3. Signs of ulceration. 4. Signs of atrophy. 5. Signs referrible to the circulating system.

Under the head of "Signs of *Irritation*" are included all the bronchial rhonchi, feebleness of respiration, and dulness of sound. This is an instance of that tendency to Broussaian generalization which we have before noticed as one of the few defects in this work. They should rather be called signs of *obstruction*; for they all imply an impeded passage of air into the lungs, and it is far from certain that many of them are essentially connected with irritation. The mucous, the muco-crepitating, and sibilous rhonchi, with feebleness of vesicular murmur, and a shade of dulness of the clavicle or spinous ridge of the scapula, are the most common signs; but it is from their partial localization and permanency only that they derive their diagnostic value in phthisis.

"Simple bronchitis is seldom circumscribed, while that of the consumptive is commonly so: the latter begins in the upper portion of the lung, remains obstinately fixed in the air-tubes, gradually spreads downwards, and, while in its first stages in the lower lobe, is combined with tuberculous ulceration in the upper; it may be intense in the upper lobe, while the lower is altogether free, or engage the whole of one lung, while the other is scarcely affected. These are not the characters of ordinary bronchitis." (P. 392.)

But there may be a *general* deposition of tubercles, and consequent absence of localization of signs, as often happens in acute phthisis, which runs a rapid course. Partial feebleness of respiration, ascertained by comparison of the corresponding portions of the lungs, and of the upper and lower lobes, is an important sign, and should be tested by forced as well as ordinary respiration. Dr. Stokes says that there is, however, in many individuals, particularly nervous persons, a natural difference between the intensity of the murmur in either lung; that in the left being almost always the loudest.* The morbid sign would be distinguished from this by its being even more partial, and accompanied by dulness or some rhonchus. "In ordinary cases, the feebleness of respiration is almost always modified, and often removed, by a timely anti-

* This would seem the reverse of Dr. Gerbard's opinion, noticed in vol. iii. p. 188, of this Journal.—Ed.

phlogistic and revulsive treatment; and there can be no doubt that in this way many a patient can be saved from impending consumption." (P. 396.) Dr. Stokes does not notice another sign of obstruction which Andral considers often available in the early stage of phthisis,—the increased sound of *expiration*. This sound is scarcely audible in the natural vesicular murmur, which is almost wholly composed of the sound of inspiration; but, when aggregated tubercles, or other causes, obliterate several of the bronchial tubes, the exit of air from the tissue becomes audible in various degrees; in some cases heard only during forcible breathing, but in others it is loud and whiffing, and almost masks that of inspiration. We think that the circumstance of dilatation of the air-cells, and perhaps also occasionally of simple bronchitis producing a similar phenomenon, impairs the value of this sign, unless there be also dulness on percussion. On this last subject Dr. Stokes gives no less than twenty-six different modes of dulness on percussion from tubercles, but he has repeatedly verified. Of these, the following are interesting specimens:—6th. Right clavicle and left scapular ridge dull. 7th. The converse of the last. 20th. Comparative dulness of one lung, with puerile respiration under the clavicle. 26th. General but incomplete dulness of both lungs, supervening on bronchitis, or, with crepitating râle, persisting to the fatal termination. In a few instances, dulness under the clavicles coincides with a bronchial respiration; and this latter sign is sometimes only audible in the erect posture. This is because the chest is then more raised, and the respiration more complete in the upper parts of the lung. The phenomenon of bronchophony, or vocal resonance under the clavicles, is wholly unnoticed as a sign of tubercles; yet we are sure that, in many cases, when distinctly louder on one side, and at the humoral end of the clavicle, it is entitled to some confidence. The vocal signs are altogether too much depreciated by Dr. Stokes.

In the use of percussion in these cases, particularly on the clavicles and scapular ridges, the most delicate mediate percussion with a single finger is to be preferred. In doubtful cases, Dr. Stokes recommends it to be practised also whilst the patient holds in a full inspiration. Dr. Williams had likewise, in the paper before quoted, advised that, in such cases, percussion should be performed during different degrees of the respiratory act. Sometimes a difference is perceptible only after a full expiration. The last-named writer states, moreover, that mediate percussion with the fingers of the flat hand, applied over a large surface, will often detect a dulness from scattered tubercles, when percussion on a single finger, which is exclusively employed by Dr. Stokes, fails to yield any indication; and our own experience corroborates the opinion of Dr. Williams. Dr. Stokes does not allude to the complication of tubercle with emphysema, which we have often found to render the results of percussion equivocal. The dilatation of the air-cells accompanying numerous scattered tubercles is generally superficial; and we have seen a case in which it caused the whole chest to yield a clear sound, although a vast number of tubercles of various sizes, and not a few small vomices, were found after death, within the lung, beneath this emphysematous surface. There is, however, usually an irregularity in the percussory sound in these cases; and, by using strong as well as gentle percussion, a difference may be generally detected. It is this emphysema, more

than the atrophy of the lung, as supposed by Dr. Stokes, that often renders the sound clear even in the last stages of phthisis.

Dr. Stokes offers little that is new on the subject of the Signs of Ulceration of the Lung. He trusts only to cavernous respiration and gurgling as signs of a cavity. He sets scarcely any value on pectoriloquy, and thinks that, if the ear be well accustomed to the other signs, this may be neglected. We think that he under-rates this sign as much as Laennec over-valued it. When heard (*with the stopper in the stethoscope*), in any part of the chest where the respiration is naturally purely vesicular, and especially if it be of that perfect kind in which the voice seems to be spoken *into the tube*, whether it be accompanied with cavernous respiration or not, we consider it a sign of a cavity communicating with the bronchi, as certain as the signs trusted to by Dr. Stokes. It is true that it may be absent when they are present, especially when the cavities are not empty, or do not open freely into the bronchi; but we have known instances in which pectoriloquy was heard without any cavernous respiration. We have before hinted at the reason why Dr. Stokes, M. Andral, and others, do not sufficiently distinguish the value of pectoriloquy; they do not test it by the stethoscope with the stopper in, without which it is often impossible to distinguish it from morbid or even natural bronchophony. The latter phenomenon, which is extended over a wider space, is so much reduced by using the stopped stethoscope, that it can then be readily distinguished from true pectoriloquy, which, being produced in a circumscribed cavity, is still transmitted through the simply perforated cylinder.

Dr. Stokes makes some valuable remarks on the partial contractions of the chest which take place in phthisis, and which he believes to be produced in many cases by a wasting of the lung, and independently of the formation of cavities. M. Andral has expressed the same opinion. For measuring the upper parts of the chest with a view to detect these contractions, Dr. Stokes makes use of graduated spring callipers, one knob of which is fixed on the scapula, and the other below the clavicle. We have been in the habit of judging of the comparative size of the upper lobes of the lungs by inspection, not only from in front and behind, but also from *above*, by looking down at the patient's chest from behind the top of his head; and we have often thus discovered a defect in symmetry that was not perceptible by ordinary inspection. But Dr. Stokes's callipers will probably give us more accurate results.

We regret that our limits do not permit us to quote the very interesting observations which Dr. Stokes gives on the Varieties of Phthisis; the perusal of which, however, we earnestly recommend to the attentive perusal of all practitioners. This we do the more strongly, because we are convinced, from much observation, that diseases, considerably differing from each other in pathological character and origin, and, in relation to treatment, are, both by writers and practitioners, still confounded together under the name of pulmonary tubercle and phthisis.

In discussing the treatment of phthisis, Dr. Stokes considers it under the two heads, *curative* and *palliative*; and, although he admits that the latter is that which we must generally follow, yet he doubts not "that, as medicine advances, the cures of consumption will be much more frequent, its nature will be better understood, its first stages more commonly

recognized, and the disease prevented from proceeding to incurable disorganization." Our hopes, if not our confident expectations, are the same. With relation to the treatment, Dr. Stokes divides the cases of phthisis into two classes, the constitutional and the accidental. This is very much the division of Professor Alison and Dr. Williams, and that formerly held by M. Andral, who now, however, seems to consider, with Drs. Clark, Carswell, and others, that the constitution is involved in all cases. In constitutional cases, "tubercle supervenes either with or without precursory irritation in persons strongly predisposed to it by hereditary (we would add, or acquired,) disposition or original conformation. In these the disease is generally rapid, invades both lungs, and is complicated with lesions of other systems. The disease is constitutional, and the affection of the lung, though the first perceived, seems but a link in the chain of morbid actions. In the second, we meet the disease in persons not of the strumous diathesis, and who have no hereditary disposition to tubercle. The disease results from a distinct local pulmonary irritation, advances slowly, and *the digestive and other systems shew a great immunity from disease*. In both cases, we may effect a cure; but this result will be more often obtained in the latter than in the former class." (P. 438.)

Four forms of incipient curable phthisis are noticed by Dr. Stokes,—the *Localized Bronchitic*, the *Tracheal*, the *Hæmoptytical*, and the *Pneumonic* varieties. Dr. Stokes thinks that many cases of the first can be cured, if no time be lost. Besides confinement and rest, with mild farinaceous diet, a sedative for the cough, and one bleeding at first, if the pulse be inflammatory, leeches in small numbers are to be repeatedly applied, alternately below the clavicles and in the axilla of the affected side; and, when these have diminished the dulness and the stethoscopic signs, a blister of the size of a dollar is to be applied, about every three days for several weeks, under the clavicle and over the scapular ridge: the blister may then be converted into a superficial issue, by dressing it with a disc of felt anointed with mercurial and savine ointments; the regimen may then be improved. Friction with the turpentine liniment, and inhalation of the vapour of warm water impregnated with twelve or fifteen grains of extract. *cicutæ* may now be employed; and, in mild weather, exercise on horseback. A milder climate and frequent changes of situation complete the recovery. The hæmoptytical variety is to be treated on the same principles, but bloodletting, general and local, must be used more freely to restrain the hæmorrhage. The tracheal and pneumonic varieties will generally require the use of mercury in addition to other measures.

"Mercurial treatment of incipient phthisis" is a title which will startle many of our readers; nevertheless Dr. Stokes assures us that not only he, but Drs. Graves and Marsh, "have treated with mercury several cases of incipient pulmonary disease, which would in all probability have ended in phthisis." He admits that the cases are too few to establish the treatment, and that "the remedy is a two-edged sword, and its exhibition must not be lightly attempted." He gives two cases of permanent and one of temporary recovery, the latter dying some months after, tuberculous. The signs of these cases were, (besides the general symptoms,) dulness on percussion, and feebleness of respiration, with obscure rhonchus

under one clavicle, all of which were removed when pytalism was produced. We agree with Dr. Stokes in supposing that, where tubercles exist, they often produce physical signs only by the irritation and subsequent change which they may cause in the lung, the latter may be removed by treatment, and the physical signs with them; but, we are not sure that the tubercles go also, and therefore that the subject is safe. Years of the subsequent history are required to establish this. Still, whether the treatment cure or only intercept and arrest this formidable disease, the profession is deeply indebted to the talents and industry of Dr. Stokes, for his rational efforts to improve the diagnosis and treatment of incipient phthisis.

Treatment after excavation has formed, has in some cases prolonged life for many years, and in a few there has been a complete recovery. The principal remedy was the seton, with frequent changes of air, or sea-voyaging, resorting in winter to a temperate and equable climate; and, in this respect, "the Cove of Cork is surpassed by few places." The less medicine the patient needs to take the better. "So long as a drain from the chest does not weaken, it is clearly useful, and all the other means should be calculated to give enjoyment to the mind and to strengthen the body."

The palliative treatment, although that commonly called into requisition need not detain us, as the observations of Dr. Stokes are those of most judicious practitioners. He enjoins great caution in adopting measures to check expectoration, which is the natural relief of the lung. The inhalations of iodine, chlorine, and tar, act in this way and are consequently hazardous. "They have no specific action on tubercle, but, by arresting purulent secretion, they cause a more rapid development of the disease." Our own experience accords much with this. It is not so with the internal use of iodine; but of this we have no room to speak, and we find that we must postpone Dr. Stokes's interesting Section on Diseases of the Pleura, and the remainder of M. Andral's "Notes," with the whole subject of the Larynx and Trachea, to a future Number.

The unusual length of this still unfinished article sufficiently indicates our opinion of the importance of the subjects, and the ability of the authors commemorated in it. The notes and additions of M. Andral are the contributions of an active and philosophic spirit, seeking nature beyond his predecessor's track, but still giving homage to the master-mind before him. Those of M. Meriadec Laennec are of a much inferior order; their chief goodness consisting in the recapitulations of the text, and the extracts of the opinions of other writers, chiefly French; for, except in some imperfect notices of the additions of the English translator, there is nothing taken from this side of the channel. But the book of Dr. Stokes is altogether of a higher order, and is not only a most important and valuable contribution to our knowledge in the diagnosis and treatment of thoracic diseases, but it is a work which we would cite as a proof of the generally improved state of medicine, and as a production justifying the belief which we expressed at the beginning of this article, that medicine is really assuming the character of an inductive science. We recommend it, in the strongest terms, to all classes of our readers. We have only one admonition to give the author,—viz. to pay more attention to the literary execution of his next volume.

ART. II.

Système Lymphatique, considéré sous les Rapports Anatomique, Physiologique, et Pathologique. Par G. BRESCHET.—Paris, 1836. 8vo. pp. 304.

The Lymphatic System, considered in Relation to its Anatomy, Physiology, and Pathology. By G. BRESCHET.—Paris, 1836. With four Plates.

THE present work, like most of M. Breschet's former ones, is calculated to inspire us, if not with a very high notion of his originality, at least with respect for his industry and patience in the collection of facts, as well as for his judgment in comparing and disposing of the theories of others. When we consider that it was got up under all the hurry and agitation attendant on the "Concours," (as appears from page 51,) its merits, whatever they may be, are in a manner enhanced; and, whatever defects it displays should meet with more than ordinary critical indulgence.

In the commencement of his work, M. Breschet gives us a history of the subject, beginning with the conjectures of Aristotle and the demonstrations of Erasistratus and Herophilus, and ending with the recent investigations of Lauth in Belgium and of Panizza in Italy.

Galen, who ascribed the office of intestinal absorption to the mesenteric veins, seems to have been quite ignorant of the uses and importance of the system under consideration; and his authority reigned so absolute for many centuries after, that not only his positive but even his negative opinions, or his very silence, were implicitly respected; so that, as late as the year 1565, the distinguished Italian anatomist, Eustachius, though he had actually discovered the main trunk of this set of vessels, dared not, in opposition to the above authority, heretically to believe his own eyes, but concluded it, in spite of all evidence to the contrary, to be a mere vein. Aselli, in 1622, detected both the lacteals and the lymphatics of the liver in dogs and various other animals, without, however, being led to a knowledge of their true nature; for such is the force of prejudice and the tyranny of long-established opinion, that he saw nothing in the discovery but a corroboration of Galen's theory of the sanguification of the vital fluid in the liver, conceiving that the vessels in question were running towards this organ, instead of passing out from it, as is really the case. In 1628, the lymphatics of the mesentery were seen for the first time in the human subject; but there was still much opposition to their being considered as a distinct system of vessels; and it is painful to think that the high names of Gassendi, Riolanus, and even of our own Harvey, who had himself suffered so grievously from the undue authority of the ancients and from the obstinate prejudice of his contemporaries, are to be found in the list of opponents. In 1649, Pecquet, a provincial physician in France, discovered anew the thoracic duct, which had been forgotten since Eustachius's time, and demonstrated it to be the common trunk of the system. Prejudice and obstinacy were at length obliged to yield to the force of truth; and it was early made out by Glisson and Vessling, by referring to the position of the valves, that the colourless vessels between the liver and mesentery

really passed from the former to the latter, on their way to the thoracic duct.

The existence of the general system of lymphatics coming from all parts of the body had, up to this period, been quite unknown. The honour of the discovery was now disputed by Rudbeck, Bartholin, and Jolyff; but the Swede seems to have a fairer title to it than either the Dane or the Englishman. It was in 1651 that Rudbeck first saw them, and in 1652 he demonstrated them publicly before Queen Christina and others. The details of the subject were afterwards followed up with great zeal by Nuck, Ridley, Ruysch, Albinus, Meckel, and Lieberkuhn; by the Hunters, Hewson, Monro, Cruikshank, and Sheldon; by Soemmerring, Schreger, Werner, Feller, Haase, and Mascagni. By some of these it was carefully investigated in relation to its comparative anatomy; and in this department considerable accessions to our knowledge have still more recently been made by Fohmann, Lauth, Rossi, and Panizza; yet without the precise mode of origin of these vessels has not hitherto been satisfactorily made out. Such is their tenuity, that the sense of sight, with all the aid that microscopes and skilful injections have furnished it, has never yet been enabled to detect how their minute ramifications commence in the various tissues of the body. But, as usual, where the senses fail us, there has not been wanting an abundance of fanciful hypothesis. Aselli, who was one of the first who endeavoured to ascertain this point with any degree of accuracy in regard to the lacteals, came to the conclusion that they commence by absorbent pores opening on the mucous surface; and this is the opinion which has been most generally held since his day. Indeed, the lymphatics of the whole body have been supposed to commence in a similar manner, from the various serous cavities, the cellular membrane, the surfaces of the arterial and venous tubes, excretory ducts, &c. Some anatomists, however, observing that the finer injections passed from the arteries into the lymphatics, thought themselves justified in concluding that the latter communicated freely with the former, or originated by inosculation with their minuter ramifications. This view of the matter has been supported by Cowper, Senac, Cheselden, and other high authorities. On the other hand, Panizza, one of the most recent investigators, has repeatedly injected the arteries of the intestines in the human subject, as well as in the horse, birds, the tortoise, &c., yet has never seen the fluid employed appear in the lymphatics. In the dog, on the contrary, on injecting the arteries of various portions of the intestinal canal, and more especially of the rectum, where the lymphatics are very numerous, he has frequently observed that these latter vessels became filled immediately after the entry of the fluid into the arterial capillaries; and this without the least appearance of extravasation. He has noticed a similar fact in relation to the small intestines of the hog; and, in injecting the hepatic artery in the human subject with mercury, the neighbouring lymphatics are almost always filled, and that too even where the fluid does not enter either the *vena cava*, *vena portæ*, or the biliary ducts. The same observation holds good in relation to the liver of the dog and of the horse, but fails in regard to reptiles. The injection of the splenic artery in man, in the dog, and in the hog, does not fill the lymphatics of the spleen; whilst, in the horse, some of these vessels on the convex surface of this organ, occasionally

ome thus filled. In man, and the mammifera generally, and in
ls, the fluids injected into the renal artery do not enter the lymphatics
of the kidney. Such are some of the singular anomalies which the
periments of M. Panizza have made known to us.

M. Breschet, in his researches in regard to the venous system, has
erved that the lymphatics more frequently become filled when several
ns are simultaneously injected.

M. Panizza asserts that no direct union nor continuity between the
ous capillaries and the lymphatics has ever been made manifest to the
; either in the human subject or in the lower animals, and affirms
t the mode of mutual relation between the ultimate ramifications of
se two systems is still one of nature's secrets; and consequently he
uses his assent to M. Fohmann's opinion as to the inosculature of
ir capillaries; as this, as well as the other view, according to which
h of these two sets of vessels is supposed to terminate by open orifices,
a mere hypothesis. He has himself always observed that, in those
es where the injection passed from the sanguiferous vessels into the
lymphatics, a network of microscopic capillaries surrounded the ramifi-
cations of the latter, and conceives that the penetration of the fluid may
ascribed to porosity.

Mascagni long since alluded to the facility with which we may mistake
veins coming from the glands, especially in the abdomen, for lymph-
ic trunks inosculating with the neighbouring veins. This error may be
ided, according to Panizza, by attending to the following circum-
stances:—the venous ramifications are much more rectilinear in their
ection than the lymphatics, which are comparatively tortuous; they
are more cylindrical and less knotted, from the absence of valves in the
aller veins, and we can consequently easily make the fluid retrograde
them towards the gland; their walls are thicker; the fluid which they
tain is red; and, lastly, their mode of inosculature is different from
t of the lymphatics.

M. Panizza points out two peculiar circumstances under which, if
at caution be not employed, we may still be led to confound a vein
h a lymphatic; namely, first, when a vein returning the blood from a
nd lies concealed by several lymphatic efferent vessels, which accom-
ny it to the next large vein; the appearance of mercury in the large
n, on injecting the part, naturally enough gives rise to the erroneous
eclusion that the fluid had made its way thither through the lymph-
s, which are alone seen, and that they open directly into such vein;
ereas, it has really been carried by the vessel which lies hid in the
dst of them;—secondly, where a small vein, coming out from a gland,
ens after a short passage into a larger one, the mercury passing freely
m the former into the latter, the short vein may, from its situation, be
idily mistaken for the lymphatic efferent of the gland. But the error
easily detected by tying the vein; upon which the fluid, being now
ested in its former course, forces its way into the real efferent, and the
ference between the two vessels becomes immediately obvious.

It was the opinion of Mascagni that lymphatics existed in every tissue
the body; but the more general belief was, that, though they were to
detected in most of the organs, yet the brain, the spinal marrow, the
e, and the placenta were unprovided with them. M. Fohmann, how-

ever, has, within these four years, succeeded in injecting them on the surface of the brain, in the substance of its membranes, and, as he believes, also in the umbilical cord and on the placenta. M. Arnold thought he had detected them in several of the tissues of the eye; and Sir Everard Home, in the minute canal which traverses the retina in the middle of the yellow spot of Soemmerring, saw only a lymphatic vessel. Breschet puts little faith in either of these two latter assertions.

M. Fohmann, as we have just stated, has described and represented lymphatic vessels in the umbilical cord and in the placenta. Long since similar observations had been made by Needham, Pascoli, Wrisberg, and others; but these had fallen into disrepute, inasmuch as they were not confirmed by the subsequent investigations of Hunter, Hewson, Cruikshank, and Mascagni. The umbilical cord is conceived by M. Fohmann to consist almost entirely, with the exception of its sanguiferous vessels, of a plexus of absorbents, so that one can scarcely introduce the point of a needle without touching some of them; and to fill them, it is only necessary to pierce the sheath of the funis with a finely pointed lancet, and then to introduce mercury by means of a small tube and very moderate pressure. He has not found any valves in these vessels: indeed, the difference of their general appearance from that which lymphatics present in other parts, is sufficient to account for the doubts expressed in regard to them by Panizza and others. M. Fohmann himself admits that he has never seen any vessel of this kind passing from the cord to ramify on the amnion, and rarely any such penetrating into the parenchyma of the placenta. M. Breschet says that he also has succeeded in injecting these supposed lymphatics of the umbilical cord, both directly in the manner specified above, and also indirectly through the lymphatics of the liver.

Professor Lauth thinks he has detected lymphatics between the decidua and the uterus; a discovery received with much doubt by Carns, and which Breschet conceives to stand in need of further confirmation. Lauth's notion of the matter is, that, there being no direct communication between the uterine vessels and those of the placenta,—no cells into which the blood, as fancied by some, is poured out,—the only connexion of the maternal with the foetal circulation is through the medium of two sets of lymphatics; one of which he supposes to terminate in the sanguiferous vessels of the placenta, and the other in those of the decidua and uterus; that by the one the blood (or at least the materials for its formation,) is transferred from the mother to the foetus; and by the other the constituent parts of the effete blood of the foetus are taken back again into the mother's system. M. Breschet admits the ingenuity of this theory, whilst at the same time he feels obliged to reject it, as being altogether deficient in anatomical proof. Indeed, M. Lauth himself, in consequence of his own more recent investigations, has been led to doubt the accuracy of his former observations; and he has had the courage and good faith to acknowledge this change of opinion.

The cellular tissue throughout the body seems to be the source from which the lymphatics almost exclusively take their origin; and it is accordingly in those parts where it is wanting, such as the nails, epidermis, hair, enamel of the teeth, &c., that these vessels seem entirely absent.

Cruveilhier thinks it probable that the cellular tissue and serous membranes are made up of lymphatics; and Mascagni, by one sweeping and, as it seems to us, somewhat extravagant generalization, lays it down that all the white tissues are thus constituted. Professor Arnold, of Zurich, with microscopes magnifying to thirty times and upwards, observed that the cellular tissue at the back of the eye consisted almost entirely of a network of lymphatics, in the meshes of which lies the fat forming the supporting cushion to the organ; and M. Fohmann, by his injections, has been led to a similar conclusion. Müller, of Berlin, has, however, thrown some doubt on the correctness of these observations; and Breschet likewise thinks they require at least to be substantiated.

M. Lauth, in injecting the lymphatics of the leg of an anasarctous subject, succeeded in filling the minute cutaneous ramifications in the region of the groin and inside of the thigh so completely, that it was scarcely possible to put down the point of a needle without touching some of them; and the same anatomist, as well as Tiedemann, Cruveilhier, and Breschet himself, has been equally successful by another method,—namely, by just penetrating the cutaneous surface with a capillary tube of steel or glass, containing mercury, in such a manner as to implicate only the epidermis, and reach the vascular network between it and the chorion.

These minute ramifications are without any complete valves, but present here and there obvious dilatations, especially at the points of junction of the leading branches of the network. M. Breschet observes, that these dilatations are less frequently met with on the surface of the true skin than within its substance. He remarks likewise that this network sends out into the substance of the epidermis certain minute, loop-like prolongations or doublings of the lymphatic vessels; but that he has never been able to discover that they terminate by any open orifice or free extremity. He also notices that the network of lymphatics is more superficial than that formed by the sanguiferous capillaries: the two are, however, very intimately blended, more especially within the substance of the true skin. The preceding observations are only confirmatory of similar ones already made by M. Fohmann. But neither Breschet, Fohmann, nor Lauth have ever succeeded in forcing the mercury in the lymphatics through the surface of the cuticle; and hence they conceive that, if Haase did so, it must have been by using such violence as to lead to their rupture. Breschet looks upon this non-escape of the fluid as an additional proof that these vessels are unprovided with any aperture at their extremity; and this is likewise the opinion of Panizza and Fohmann. Indeed, it has been found by one of them that we may remove the thin epidermis of the glans penis, the part having been previously minutely injected with mercury, and yet none of this fluid shall escape or adhere to the membrane so removed; which seems obviously to imply the integrity of the lymphatic vessels after such removal, and that they do not penetrate through its surface, nor possess any kind of terminal aperture.

In the mucous membrane, the loop-like terminations of these vessels lie almost naked, or simply enveloped in mucus and very loose cellular tissue, which is just sufficient to keep them in connexion with the sanguiferous capillaries; a state of things, as Breschet adds, eminently favorable to the act of absorption. The villousities are, in fact, composed

of loops of these vessels and of the arterial and venous capillaries, and terminal apertures are no more discoverable in the lymphatics here than in those of the skin already spoken of. As to this point, however, Breschet, Fohmann, and Panizza stand in opposition to Cruveilhier and Magendie, who believe in the existence of open orifices on the extremities of the villi.

The condition of these vessels on the surface of other mucous membranes, excretory ducts, &c., varies little from that just described, save as to slight differences in regard to tenuity, number, &c., detailed at length by M. Fohmann, to whose work we refer the reader.*

Many anatomists conceive that the lymphatics take their rise, amongst other situations, from both the inner and the outer walls of the blood-vessels. This, it is obvious, is quite a distinct matter from their being continuous with these latter vessels, which they undoubtedly are not; else they would always be susceptible of being injected by filling the arteries or veins, which, as we have already seen, is very far from being invariably the case; and in those cases where such passage from the one to the other system of vessels actually occurs, it has been supposed by Monro, Meckel, Caldani, Mascagni, and Béclard that the injected fluid previously undergoes an extravasation into the cellular membrane. M. Panizza has, however, observed it without any such extravasation; which indeed, at best, seems to be but an unsatisfactory explanation of the occurrence. Breschet thinks we must rest satisfied with the admission of the fact, and that we are not yet in possession of any adequate explanation of it. M. Fohmann has succeeded in injecting minute networks of lymphatics on the inner surface of the arteries, and has represented them in his plates. He has also demonstrated their existence in the interior of the veins, but their injection is here much more difficult. He has succeeded in injecting them also in the inner as well as the outer lining of the heart; as have likewise MM. Cruveilhier and Bonamy. Fohmann has, moreover, demonstrated their trunks within the skull on the anfractuositities of the brain following the course of the veins. There is no organ in which they are more difficult to inject than in the muscles, owing to the extreme tenuity of their coats in this situation. The author last named has succeeded in respect to the diaphragm alone, where they are seen to follow the bundles of muscular fibres in their course, and form meshes around them, and appear to be destitute of valves.

The lymphatics of the nerves, though their existence was pretty generally admitted, had never been satisfactorily demonstrated till M. Fohmann turned his attention particularly to the subject, and fully succeeded in injecting them.

It has commonly been supposed that the brain is ill supplied with lymphatic vessels. This, as we have just seen, is certainly not true in regard to its membranous envelopes. According to the author just alluded to, if we introduce a lancet between the pia mater and the arachnoid, and inflate the artificial canal so made, a network of lymphatics is immediately rendered obvious between these membranes, the branches of which are larger than in other parts of the body, whilst their parietes

* *Mémoire sur les Vaisseaux Lymphatiques de la Peau, les Membranes Muqueuses, &c.*—Liege, 1833.

are so feeble as to tear on every attempt to introduce mercury into them. In their ramifications they accompany, as already stated, the arteries and veins. The old account which Ruysch has given of them, and of their difference from those of other tissues, is better than that which Mascagni has more recently furnished us with. The existence of these vessels in bone has been fully demonstrated by the successful injections of Cruikshank, Soemmerring, and Bonamy.

The dimensions of the lymphatics differ considerably in the different tissues, but, according to M. Müller, one of the latest authorities on the subject, are never so small as the arterial and venous capillaries, and are always, without exception, visible to the naked eye. M. G. R. Treviranus, in a work which has just appeared, says that he has discovered by the microscope that the walls of the lymphatics, like the cellular membrane and other tissues, are made up of minute elementary cylinders, of a diameter of from about 0.001 millimetres to 0.006, placed in a series side by side and end to end, so as to constitute tubes which form networks, and open into larger lymphatic trunks. According to the same authority, they originate also in the villi; and their roots in this situation are just the elementary cylinders of the cellular tissue, which unite together and terminate in the extremity of some larger lymphatic. If we take an animal which has been fed shortly before death, and examine with a powerful microscope the villi strongly illuminated from below, we may observe, he asserts, on their surface prominent vesicles, from the sides of which there descend obscure lines, which unite in a point in the axis of each of the villi. These, Treviranus believes, can be nothing but the roots of the lacteals; as their straight direction and central position sufficiently distinguish them from the sanguiferous capillaries which run along the surface of the villi, and are more sinuous in their outline. He goes on to state that, on the surface of each of the prominent vesicles, a circular point is discoverable, which is constant, and very distinguishable from other smaller points visible in the same part; and he coincides with Cruikshank in supposing it to be an aperture and the commencement of the lacteals. He adds, however, what tends rather to shake our faith in the correctness of his conclusion, that it might also be considered as a microscopic mucous follicle seated on each of the villi, and that it may possibly unite both of these very dissimilar functions. Moreover, his observations having been made with very high magnifying powers, are not wholly exempt from a portion of that doubt which seems almost inseparable from results so obtained. M. Breschet is still of opinion that these apertures have not been yet sufficiently demonstrated, and that the origin of the lymphatics are so minute, and the fluid which they convey so transparent, that the mode in which they commence is still a secret. Their valves, by preventing in a great degree the retrograde motion of artificially injected fluids, present an additional difficulty in the way of the investigation.

The third section of M. Breschet's work, "On the General Arrangement of the Lymphatic System," contains scarcely any thing which can be called new. He begins by mentioning the arrangement of the minuter lymphatics into fine networks, from which branches of a larger size take their rise; by these, still larger meshes are produced. The direction of the trunks originating herefrom approaches to rectilinear; they gradually

converge towards the main trunk of the system, forming in their progress two planes in relation to the respective organs in which they originate; a superficial one immediately beneath the external envelope of the organ, —(in the skin, for example, they accompany the subcutaneous veins;) —and a deep-seated one accompanying the arteries and nerves of the part. The deep-seated ones are larger than the superficial; those of the inferior extremities larger than those of the superior; whilst those of the head, on the contrary, are remarkably small. He alludes also to the fact of their changing their dimensions with changes in the condition of the organ from which they rise: thus, they become enlarged in the gravid uterus, in the breasts of women giving suck, in the case of suppuration and scirrhus of a part.

Their universal mode of origin seems to be by delicate plexuses, save in the single instance of the villi, in which, as we have seen, they commence in the form of loops. As they ordinarily run parallel, and do not converge or become lost in one another like veins, their chief mode of communication is by means of cross branches, and they often run a considerable distance without any change in their dimensions. They are susceptible of a very high degree of dilatation, and are, for the most part, capable of sustaining a much higher column of mercury without rupture than either arteries or veins of a similar caliber. On this latter point the experiments of Sheldon and Meckel are in perfect accordance with those of Werner and Feller.

As to their structure, the commonly received opinion is that their walls consist of two membranes—an external cellular one, of considerable density and firmness and very elastic; and an internal one, finer, more delicate, and more extensible than that of the veins, and by its folds forming the valves. They have no middle fibrous membrane, like the arteries. Schreger, indeed, thought he had detected circular muscular fibres in the thoracic duct of man and some animals, and Soemmerring believed in their existence. Mascagni, on the other hand, does not admit them, nor yet Rudolphi. The external membrane, according to Cruveilhier, is formed of elastic yellow tissue (“tissu dartoïde,”) to which these vessels owe their power of undergoing great degrees of dilatation, and again recovering their ordinary caliber. Their vital contractility is manifested for many hours after death: thus, if a dog be killed when the process of digestion is in an advanced stage, on opening the abdomen the lacteals, which are found full of chyle, being stimulated by the contact of atmospheric air, contract, and in a few minutes completely empty themselves. But if not examined within twenty-four hours after death this phenomena is no longer displayed; thus showing plainly that it is of vital origin. Again, if we make a ligature on the thoracic duct or any large lymphatic vessel of a living animal, and then puncture it below the ligature, the fluid escapes in jets; whilst, if this be deferred till some hours after death, it comes away slowly and gradually. It is not very easy to make any decisive experiment as to their sensibility in a healthy state, the results being embarrassed in consequence of the severity of the wounds necessarily inflicted in order to reach them, as well as by a doubt as to whether some nervous filaments may not be implicated. But when they are inflamed, as after a punctured wound, or the absorption of any veins, they manifest a high degree of sensibility, and become the seat of intense pain.

The valves seem to be defective or to exist only in a rudimentary state in the minuter ramifications, such as those forming the cutaneous networks, as injected fluids are here easily made to retrograde and fill the small collateral branches and off-sets; or, perhaps, as M. Breschet suggests, the valves may even here be perfect, but at the same time so delicate as to be easily ruptured by the slightest force, and thus readily allow the mercury to pass. However this may be, regular and complete valves become first manifest in branches of a caliber a degree greater. Their normal form is pouch-like, as in the veins. Those of an annular shape are to be considered as anomalies or instances of incomplete development, inadequate to the complete closure of the vessel, and not as the ordinary configuration, as some recent authors have erroneously asserted. Generally speaking, they are less numerous in the smaller than in the larger vessels or trunks. In the former, their average distance from one another is about an inch. But this varies in different situations: thus they are particularly close to one another in the parietes of the intestines. The frequent narrowings which give to these vessels the appearance of a string of beads seem to be owing, not to the valves, which are obviously farther apart than these contractions, but to the tendency of the mercury to fall into a globular form. The sphincter-like arrangement of fibres represented by Mascagni at the base of the valves has never been found by Breschet; no more than the longitudinal fibres recently described as passing between valve and valve, for the supposed purpose of contracting the intervening spaces, and so forwarding their contents.

In some of the lower animals, the lymphatics are not furnished with valves. This has been found by M. Fohmann to be the case in respect to the small intestines of the lion and several of the other Carnivora. They are also altogether wanting, or at least very slightly developed, in the tortoise and in fishes.

The lymphatic ganglia or glands vary in size from that of a grain of millet up to that of a pigeon's egg; the largest being the mesenteric, bronchial, inguinal; whilst the smaller ones are met with in the carotid canal, on the deep-seated lymphatics of the limbs, in the epiploa, &c. M. Breschet alludes also to their greater softness and relative size in infancy and youth, and their diminution in number and bulk in advanced life. This last fact is explained by M. Lauth as referrible to the general law of diminution of the capillary vessels in old age, and to the circumstance of these glands being, as Meckel and many other anatomists conceive, only a congeries of minute lymphatic vessels.

The existence of glands has not been recognized commonly in the interior of the organs. Certain diseases in various tissues have seemed to give rise to their appearance and development in situations where they had not previously been suspected to exist. Thus in the liver, the spleen, and the brain, lymphatic glands in a morbid condition have been described; but an attentive examination of these pretended glands contained in the midst of masses of diseased substance, has convinced Meckel that frequently, at least, the products of organic changes, quite unconnected with glands, have been mistaken for them.

The lymphatic glands are particularly numerous about those organs which are in relation with substances coming from without; as, for instance, in the neighbourhood of the respiratory and digestive systems.

They are isolated towards the extremity of the limbs, and become more and more numerous as we approach the trunk. They appear to M. Breschet to have no proper enveloping membrane, but a mere thin covering of condensed cellular tissue. They are largely supplied with arteries and veins. He has seen nerves entering them, but whether they merely pass through them, or whether they leave twigs on their way he has not had ocular proof, and other anatomists who have alluded to the subject are equally divided about it.

As to the intimate structure of these glands, M. B. has not much, and nothing very satisfactory to offer; indeed, he attempts little more than to lay before his readers the principal opinions which have been held by previous writers. But, as to whether Malpighi and Mylius, Cruikshank and Werner, were right in admitting the existence of peculiar follicles or roundish cells in their interior, from the soft walls of which the lymphatics take their rise, whilst the blood-vessels are distributed on them, or whether we are to believe with Albinus, Ruysch, Hewson, Meckel, Mascagni, Béclard, and Lauth, that these glands are the mere result of an agglomeration or contortion of the lymphatics themselves, our author has adduced no new facts of a sufficiently decisive nature to satisfy the mind. He conceives that the division into *vasa afferentia* and *vasa efferentia* is uncalled for, the one set being merely a continuation of the other. The pretended vesicles alluded to above are thought by Burdach to be merely the cellular interstices between the convolutions of lymphatics; whilst Meckel and Mascagni have looked upon them simply as the patulous sections of somewhat enlarged ramuscles. Cruveilhier does not enter particularly into the structure of the glands, but expresses his opinion that innumerable inosculation of the minute ramifications take place within them.

Magendie speaks of a peculiar fluid found in the mesenteric glands which escapes on pressure and is most abundant at the centre. It had been mentioned previously by Malpighi, Morgagni, Haller, and others. Bichat compares it to that in the thyroid and thymus glands. Lauth has found it in all the lymphatic glands, and believes it to be contained in the vessels and not in the interstitial portion. Breschet confirms its existence in all, but affirms its greater abundance in those in which it was first observed, namely, the mesenteric. Of its uses we know absolutely nothing.

In the museum at Strasburg, there is an injected preparation which M. Breschet refers to as proving, undoubtedly, that the absorbent glands consist merely of a plexus of lymphatics and connecting cellular membrane; and his own investigations have confirmed him in the belief of there being no proper cavities within them. He admits, however, that the subject is still in need of elucidation.

In the section entitled "*Terminations of the Lymphatic System*," and which commences with a detailed description of the thoracic duct and a reference to the admirable plates of Meckel published in 1828, M. B. alludes to the fact of its rarely being simple throughout, but on the contrary being for the most part divided into branches which again recombine, and thus make at present a reticulated appearance on a large scale; as also to the circumstance of its being sometimes double in its whole extent;—facts which enable us to explain how its apparent oblite-

ration in one point may be consistent with the continuation of life. This plexiform disposition, occasionally met with in the human subject, recalls the normal condition in certain of the lower classes of animals. Wutzer, Müller, and Bohl, have seen a branch of communication pass from the thoracic duct to the vena azygos; and this, which is a rare anomaly in the human species, is natural in the hog.

After mentioning the termination of the thoracic duct, of the right subclavian trunk of the absorbents, of the right jugular trunk, and left axillary trunk in the subclavian and jugular veins, or at their junction, he alludes to the "*vexata questio*" as to whether there exist other communications in more remote parts between the lymphatic and venous systems. In some of the lower animals, such connexion has been rendered indubitable by the researches of MM. Fohmann, Lauth, Panizza, and Müller. Thus, for example, the first of these distinguished physiologists has found numerous such communications within the walls of the digestive organs and within the mesentery of several fishes; and Müller has detected inosculation of the lymphatics of the thigh with the sciatic vein in frogs. M. Fohmann has made a similar discovery as to the lymphatics coming from the inferior extremities, and those of the intestines becoming united with the sacral and renal veins in birds. All this, however, is far otherwise with regard to the human subject; and Lippi's pretended discoveries in this respect, namely, communications between the lymphatics of the digestive organs in man with the vena portæ, internal pudic and renal veins, the inferior cava and vena azygos, have been successfully combated by Fohmann, Panizza, and Rossi, who have shewn that the Florentine anatomist has, in his plates and descriptions, obviously mistaken lymphatics for veins, and veins for lymphatics, in a manner little creditable to his caution and accuracy; and when at Paris, it seems, he was quite unable to demonstrate, when requested to do so by M. Breschet, the very things which he had previously figured and described; and Blandin and Cruveilhier have searched in vain for any such communication between these two systems as that spoken of by him. It remains then to consider whether such communication takes place within the lymphatic glands. J. F. Meckel, the elder, adopted the affirmative in opposition to Monro and Mascagni, and it has likewise been supported by Caldani, Werner, and Beclard, and more recently by Fohmann, Tiedemann, Lauth, and Panizza.

It had long ago been observed that mercury injected into the lymphatics entering a gland escaped with as great, if not greater facility, by the veins, as by the efferent vessels. The explanations of this fact have been various; some ascribing it to rupture of the tissue of the gland, others to a natural communication between the two sets of vessels in the interior of the organ, whilst others again look upon it as a simple example of transudation. M. Breschet gives several, and we think adequate, reasons for rejecting the first of these explanations. The second is supported by M. Fohmann, who has not, however, by any means demonstrated the fact; and, were it true, the injection should not only always pass from the lymphatics into the veins, which is far from being the case, but also conversely from the veins into the lymphatics. Now M. Panizza remarks, that, in his numerous injections in regard to the human subject, he has hardly ever known this last to be the case; and from a great

variety of experiments in relation to man and other animals, he has come to the general conclusion that in all cases the passage from the veins into the lymphatics is effected, if at all, with considerable difficulty, requiring various precautions, such as tying the neighbouring veins, &c.; that the degree of difficulty varies in different organs; and, lastly, that in those instances where the transmission is effected, we are still quite ignorant as to the mode of it.

The remaining hypothesis suggested by Mascagni, and advocated by Müller and Panizza, namely, that the passage of the mercury from the veins into the lymphatics within the glands takes place by transudation through minute pores, somewhat in the same manner as the air in the air-cells may be supposed to be enabled to act on the blood in the minute vessels of the lungs, appears also to many other modern physiologists to be the most probable explanation of the phenomenon: but we own that none of the hypotheses seem to us quite satisfactory.

The lymphatic vessels have been investigated with much care in fishes by M. Fohmann, and the results at which he has arrived are, that they do not originate by open mouths here any more than in the higher classes, but by culs-de-sac, forming pouch-like dilatations in almost all the tissues of the animal; that their internal surface is polished whilst the external is surrounded by a greater or less quantity of soft spongy cellular tissue, which must be peculiarly favorable to absorption by collecting a quantity of fluid around the walls of the absorbing vessels. This same disposition of parts must be of extreme importance if Treviranus' notion already alluded to prove correct, namely, that the minute ramifications of the lymphatics originate in those elementary cylinders of which the cellular membrane is chiefly made up. The absence of valves in the lymphatics of fish, save just where they enter the veins, as also the want of glands long ago remarked by Monro and Hewson, are singular facts in the comparative anatomy of this system. M. Fohmann, however, thinks that he has discovered rudiments of these latter organs in the neighbourhood of the liver and stomach, and conceives that their spleen, in regard to the great number of lymphatic vessels which it receives, should be looked upon in the light of a great lymphatic gland. The analogy is however rejected by Breschet, and we confess, as it appears to us, with great reason, as it is at once fanciful and unsupported.

After alluding to the easy passage of injection from the uterus into the veins, and vice versâ, as also from these vessels into the excretory ducts of various organs, M. Breschet goes on to mention a somewhat rare case spoken of by Panizza, and which Breschet himself has also met with, namely, the casual injection of the lymphatics on the introduction of mercury into an excretory duct under the pressure of a moderate column of the metal. Thus, for instance, mercury injected into the hepatic duct has been known, without entering either the arteries or veins, to pass into the lymphatics in the transverse fissure of the liver along by the side of the ramifications of the vena portæ, and to fill also those on the convex surface near the entrance of the umbilical vein. A similar transmission, though in a still more limited number of instances, he has occasionally observed to take place on the injection of the lactiferous vessels with mercury. M. Panizza has never succeeded in injecting the lymphatics of the testicle through the vas differens; and as to the mode of commu-

nification in those organs where it does take place, he confesses himself totally ignorant. With a view to ascertain whether it might depend on any rupture of the parts concerned, he emptied a biliary vesicle, made many superficial scratches on its internal surface, and introduced them into mercury; but neither by shaking, compression, or any other mode, could he cause it to pass into the lymphatics.

The lymphatic vessels of the intestines have been divided into two orders, viz. the superficial set, or ordinary lymphatics, and the deeper-seated, or chyloferous vessels, or lacteals as they are commonly called; but, as their respective networks communicate freely with one another, it is not always very easy, in point of fact, to distinguish them, and hence some anatomists deny the propriety of the division altogether.

The chyle, as is well known, contains numerous globules. These, according to Leuret and Lassaigne, are round in birds, whilst those in the blood are elliptical; and in the mammifera, instead of being flat, like those of the blood, they are round, as has been determined by the microscopical observations of Müller on the rabbit, the cat, the dog, &c. Like Hewson, he has generally also found them somewhat smaller than those of the blood. The globules found in the lymph, which are much less numerous than those in the blood, must either originate in the decomposition of the organic textures, or be formed within the lymphatics themselves. In the lacteals they have been observed by Müller in the smallest ramifications, although these presented no apertures sufficient for their admission. Their source must be merely matter of conjecture, as we have no sufficient evidence on the subject.

Müller once met with a case which was singularly favorable to investigations into the nature and composition of the lymph, in a young man who had a wound of the instep which had resisted all attempts to heal it, and from which lymph escaped in considerable quantity in jets on pressing with the finger up along the dorsum of the great toe towards the situation of the wound. It had the appearance of a colourless, limpid, inodorous fluid, with a saline taste, turning the vegetable acids slightly green, and coagulating within the space of ten minutes into a reticulated mass. He directed his attention particularly towards determining whether the pure lymph, as distinguished from that in the thoracic duct, which is ordinarily mixed up with chyle, contained globules; the existence of which, notwithstanding the testimony of Hewson has been controverted by Reuss, Soemmering, Tiedemann, and other modern observers; and the result was that he satisfied himself that it did, in fact, contain a multitude of globules, though of much smaller dimensions and less numerous than those of the blood. During coagulation a portion of these remained in the clot, but the greater part continued in suspension in the serum. It was quite obvious that the globules did not constitute the coagulum, but were merely entangled in and disseminated through it; a discovery of the more interest as it shows a close coincidence with the peculiar theory of the coagulation of the blood advanced by him, and shown to be the true one, in opposition to that of Home, Prevost, and Dumas, and almost all other physiologists.

Müller took the blood of a frog, and, by filtering, separated all the globules, and so obtained a perfectly colourless fluid, in which there formed in the course of a few minutes a transparent coagulum, found to

consist of pure fibrine alone. From this it appeared incontestible that the globules had no part in the phenomenon; and this view Berzelius had previously suggested, only, however, in the form of a conjecture, in consequence of discovering fibrine in solution in the lymph of the blood. In the blood of the human subject, the minuteness of the globules throws a difficulty in the way of separating them by filtration; but a similar result has been arrived at in respect to it, by retarding its coagulation till these bodies have had time to subside to the bottom of the fluid; and an examination of the buffy coat of the blood in inflammations would afford additional evidence of the independence of this power of concretion on the globules. The colourless fluid obtained from the blood as described above, resembled perfectly that got from the wound alluded to. Containing all the fibrine, it differs essentially and entirely from the serum, and is called by Müller "the liquor of the blood." M. Breschet is of opinion that this demonstration of the identity of the lymph with one portion of the blood cannot fail to lead to important results in regard to the offices of the lymphatics. M. Dumas thinks that we may form a pretty accurate notion of the lymph by viewing it as blood containing about double the usual quantity of saline matter, diluted with water and then filtered. He supposes that it is actually elaborated from the blood by some process of filtration through the capillaries of the glands, after having been previously loaded with saltish water, introduced into it by endosmosis through the walls of the vessel. Whatever may be thought of this explanation, M. Breschet is satisfied as to the close relationship in chemical character of the lymph to the fluid obtained from the blood in the manner above described.

The development of the lymphatic system, and its differences according to age, are the subject of the eighth section. Of the condition of this system in the fœtal state we may be said to know almost nothing. The attempt of M. Uttini, about thirty years ago, to prove the existence of absorbents in the chord and placenta, appears to have been a total failure; and M. Fohmann's more recent attempts are, as we have already shown, not much more successful.

In the embryo, during the earlier periods of fœtal life, the lymphatic ganglia do not exist; and where they first appear it is under the form of simple plexuses, in which the continuity of the vessels cannot be questioned; a circumstance which adds much probability, as Breschet well remarks, to the essentially plexiform structure of the lymphatic glands.

The comparative anatomy of this system is despatched by our author in a very few pages, and in a manner at once meager and unsatisfactory. Like most other systems, it becomes more and more perfect as we ascend in the scale of animal life. The lymphatics, or vessels specially destined for absorbing and carrying fluid bearing a strong analogy to blood, exist probably only in the vertebrata; at least M. Breschet is very sceptical as to the propriety of bestowing this title, as has been done by M. Carus, on a set of tubes opening on the surface of the body in certain gasteropodous mollusca and some bivalves, and which seem really distended to take up water, convey it to the visceral cavity, and probably extract air from it in its passage; so that they should rather be looked on in the light of organs subservient to respiration.

Our knowledge of the lymphatics of fishes, the existence of which was discovered by Monro and Hewson, has received many recent additions from the labours of M. Fohmann. They form numerous plexuses, and exhibit considerable dilatations between the mucous and muscular, and between the muscular and serous coats of the alimentary canal, and communicate largely and freely. There are no distinct mesenteric glands, although, according to Professor Grant,* "two or three small, lenticular, glandular bodies have been observed in some fishes as high as the œsophagus, which have been regarded as mesenteric glands;" but, according to the same authority, they are considered by Meckel to be analogous to the thymus gland of the superior animals. Neither are there any valves in the lymphatic system of fishes, excepting where the main trunks of the system unite with the veins. In reptiles, mesenteric glands are still wanting, and their place seems to be supplied, as in fishes, by very frequent and complicated anastomoses of lymphatic vessels. It is among reptiles that rudimentary valves begin first to exist. In reptiles and amphibia, the lymphatic system is characterized by the existence of pulsatory vesicles in different parts of the body. These were first discovered by Müller, and very nearly also at the same time by Panizza, who believed that he had also detected them in birds. Müller observed them in the frog, toad, salamander, and green lizard.† In toads and frogs there are two pairs of these vesicles; one situated just under the skin, through which its pulsations are readily seen in the living animal, immediately behind the hip-joint of the posterior extremities; and the other seated more deeply, one vesicle on each side of the body, near the end of the great transverse process of the third cervical vertebra, under the posterior margin of the scapula. The anterior pair receive lymph from the anterior part of the body, and pour it into the jugular vein, the posterior empty their contents into the crural vein. Their pulsations are totally independent of the heart and of the acts of respiration, since they continue after the removal of the heart, and for an hour or two after the apparent death and most complete dismemberment of the animal. Neither are they synchronous with each other on the two sides of the body, nor always performed in the same space of time. It has almost always happened, when we have observed these vesicles, that the pulsations were performed with very little regularity, but had frequent and sometimes long intermissions. Their use is to circulate the lymph through the body, in the same way that the blood is circulated by the heart. Panizza has observed a similar pulsating vesicle in some of the lymphatics of the posterior part of the body, in one of the serpent tribes, (*Coluber flavescens*;) and a pulsating structure has also been noticed by Dr. Hall‡ in the tail of the common eel, which he designates a caudal heart, and believes to be a portion of the venous system; but there seems more reason to believe that it is a lymphatic vesicle, like those discovered by Müller in reptiles and amphibia, and is perhaps part of some lymphatic structures situated in close approximation with the veins in the tail of the eel. Panizza also observed two lymphatic vesicles, like those in amphibia, in birds. In the goose he found two lymphatic

* Lectures. *Lancet*, vol. ii. 1834; p. 819.

† Transactions of the Royal Society, Part I. 1833.

‡ On the Circulation of the Blood. 8vo. 1831. Page 170.

plexiform vesicles in the pelvic region of the body, between the tail and the thighs. These are of large size, half an inch in length and one quarter of an inch broad, and, when fluid was thrown into the adjoining lymphatics, it passed not only into the vesicles, but from them into the veins. Müller has recently examined these vesicles, and, according to Dr. Allen Thomson,* has satisfied himself that their contractions and dilatations in the living goose are not dependent on an automatic power of their own, as believed by Panizza, but correspond exactly with the motions of respiration, and cease when respiration is suspended. We are not aware that similar vesicles have yet been discovered in any of the mammalia.

In regard to our knowledge of the lymphatics in birds, much has been added by Tiedemann and Lauth to what was previously discovered by Hunter and Hewson. In this class glands first present themselves, but still few in number; chiefly about the region of the neck and base of the abdominal aorta; and they are, according to M. Tiedemann, most developed in the aquatic tribes. In other parts of the body they are still replaced by plexuses. Fohmann, Lauth, and Panizza, also describe numerous communications between these vessels and the venous system.

It is in the mammifera that the lymphatic system acquires its highest degree of development, the trunks being larger, the valves more complete, the plexuses less numerous, the glands multiplied, and the connexions with the venous system reduced in frequency. They present likewise the new peculiarity of being distributed in two layers, a superficial and a deep seated one, so that they form, as it were, a double system of vessels. They are more developed, or at least larger, in the other mammifera than in man, but their glands are less numerous. In those animals, however, whose intestinal canal is very short, the glands are crowded so close together in the abdomen that they form, as it were, a continuous mass, which has commonly, but improperly, been named the pancreas of Aselli, after their first describer.

Thus, as M. Breschet remarks, in proportion as the organization of the animal becomes more complicated, the lymphatic system reaches higher degrees of perfection, and acquires, so to say, a more independent existence. It gradually loses the cellular and plexiform appearance and assumes the form of distinct canals, its valves become more developed and its glands more frequent.

The physiology of the lymphatic system is discussed in the third chapter. The doctrine of venous absorption, as old as the time of *Galen* or even of *Hippocrates*, was vigorously defended in the last century by *Swammerdam*, *Boerhaave*, the eldest *Meckel*, and *Monro*. The discovery of *Pecquet*, the forcible arguments of *Bartholin* and others, aided by the combined powers of truth and time, at length led to the general recognition of the absorbing functions of the lacteals. They were not, however, acknowledged as the exclusive agents in this process, as an intermediate opinion soon sprung up dividing the function between the two sets of vessels, and this view was advocated by *Ruysch*, *Lieberkuhn*, *Albinus*, and *Walter*, and prevailed till the middle of the eighteenth

* *Edinburgh Medical and Surgical Journal*, No. 125.

century. It was not, however, destined to remain permanently undisputed. The two Hunters, and especially John, threw much doubt on the fact of the participation of the veins in the absorption of the chyle, and reinstated the hypothesis of the lacteals being the sole agents in the performance of this function. Schreger, Morgagni, and Lauth, followed on the same side, and the question was supposed to have been set at rest when Magendie appeared as the advocate of occasional absorption by the veins. The names of Emmert and Rapp, Meyer, Westrumb, and Foderà, have appeared in support of the same view; and Tiedemann has likewise lent it his efficient aid. Segalas even went farther, asserting that it is the veins alone which absorb foreign substances, such as vegetable poisons, &c. introduced into the intestinal canal.

As to the presence of blood in the lymphatics in any case, M. Breschet is very sceptical, conceiving that the size of the globules of this fluid would form an insurmountable obstacle to their being taken up by them. The affirmative testimony of MM. Foderà and Lauth is however entitled to respect; and, though we may not be able to explain how the blood enters them, we are not therefore justified in rejecting what seems so creditably attested. Thus M. Foderà having put two ligatures on the intestine of a rabbit at a little distance from one another, made an incision near one of the ends, and found shortly afterwards that the lacteals coming from the wound were filled with blood. M. Lauth, again, speaks of a young wolf which having been shot in the breast an effusion of fluid took place into the thorax, and the lymphatics in the neighbourhood were observed to be full of blood, as was likewise the nearer half of each of the glands into which they entered. M. Breschet, however, remarks that as there was no microscopic examination made of the supposed blood, it may have been merely a solution of the colouring matter in a state of decomposition.

The globules of pus being still larger, there must needs be a still greater obstruction thrown in the way of their being absorbed; yet this fluid likewise has frequently been observed within the absorbents. He is inclined to refer both cases if they must be admitted as facts, as we think unquestionably they must be, to some rupture or other abnormal condition of these vessels, and to look upon them not as instances of the rule but rather of the exception.

"To what general conclusion are we then to come," says M. Breschet, "from all these observations, which are in part in harmony with each other and in part so discordant?—There are at least two facts which no one disputes. The first is, that the lymphatics of the mesentery absorb from the intestines filled with the product of digestion, not the chyle itself, but the organic materials of this fluid. They occasionally absorb also foreign substances entire and unchanged, yet always existing either in a state of solution, as certain salts, or of minute subdivision, as is the case with regard to fatty matters. The second fact is, that the lymphatics from all parts of the body bring back towards the heart a fluid of the nature of blood, yet differing from that carried by the arteries and veins in containing none of the red globules. Now since, notwithstanding the employment of high microscopic powers, no communication has hitherto been discovered between their origin and that of the arteries and veins, there is no other conceivable way in which they can get this fluid save by what is commonly understood by the term absorption, a process the effects of which we know, though ignorant of its cause. As to the question whether this absorbing faculty belongs to the lymphatics exclusively, or whether the veins also participate in it, it appears to me less difficult to answer it, than is generally thought. I shall not cite

the instances of animals unprovided with a lymphatic system, and in which the process of absorption notwithstanding is equally well performed; for it would be rash to found any conclusion on organizations so remote from that of the vertebrata; nor shall I instance the absorption of certain cerebral effusions, nor that which takes place at different periods of life in the osseous tissue; nor yet that which must undoubtedly alternate with the act of nutrition in the brain, and in the eye; for it is not only possible, but highly probable, that all these parts are furnished with lymphatics; but it seems established by experiment, as strongly as anything can well be, that in man the veins and the lymphatics communicate together in the glands: the only point about which there is any doubt is the mode of this communication. We have every reason, however, to believe that it does *not* resemble that which exists in various parts of the body, in an obvious form, in some other of the vertebrate classes of animals,—birds, reptiles, and fishes,—and which does not differ from the junction of the thoracic duct with the subclavian. It seems if not absolutely demonstrated, at least highly probable, that it is effected neither by direct inosculation, which no one has ever seen, nor yet by patulous orifices at the extremities of the two systems, for these likewise have never been observed by any anatomist: on the contrary, it is perfectly understood that the arterial and venous capillaries are continued into each other without interruption in all regions of the body where minute injections have been made. Consequently, it would seem that it must be by an absorbing power analogous to that ascribed to the lymphatics, that the veins absorb the contents of these latter vessels within the glands. But if probabilities are so strong in favour of this hypothesis in respect to what takes place within the glands, how can we deny to the veins universally a power which they seem so unequivocally to possess in this situation? The only real difficulty consists in determining the limits and circumstances under which the one or the other of these two systems exerts this power, and this the present state of our knowledge is unfortunately inadequate to solve." (P. 216 *et seq.*)

It is a singular fact mentioned by Müller, that the chyle in birds is almost always limpid, whatever be the nature of their food; whereas it is well known that in the mammifera it varies much in relation to the species of ingesta. Thus, in the carnivora it is much more turbid and opaque than in those animals which live on vegetable food.

As to the absorption of gases by the lymphatics of the intestines, admitted by Foderà, Mascagni, and others, M. Breschet rejects it, being, as he thinks, totally at variance with what we know of the fatal effects of the introduction of air, even in very minute quantities, into the circulation. But this, as it seems to us, is getting rid of the matter in too summary a manner. Are there not cases where meteorism of the intestines very suddenly disappears, without any simultaneous disengagement of air externally? and is there not reason to believe that the air in emphysema is occasionally, in part at least, removed by absorption? It does not necessarily happen, as M. Breschet would seem to apprehend, that air or gases, if absorbed, must exist in the circulating fluids in a free or uncombined state. The decomposition of atmospheric air, which takes place within the lungs in the normal state, and the absorption of one of its component parts, is sufficient to prove that aerial fluids are capable of being introduced into the circulation, and existing there, we do not say in a free state, but in some form or other, without producing any of the disturbances alluded to by our author. There is nothing more wonderful in one set of vessels being capable of absorbing certain gases, than in another set secreting the same; and that gases are so secreted into the cavity of the intestines can scarcely be doubted even by the most sceptical.

"Arrived at the extremities of the arterial capillaries, and having lost some of its

stituent parts, and especially a portion of its fibrine, the blood is then divided into two parts: all its globules enter into the venous capillaries, whilst the liquid which held them in suspension, and in which the fibrine is dissolved, along with the humors and the different salts, is returned partly by the veins and partly by the lymphatics. The passage by the veins is comprehended without difficulty; for these vessels are seen to be continuous with the arteries, and very many of them are of sufficient caliber to admit even globules. But, with regard to the lymphatics, it is quite otherwise; so that, in our endeavours to explain such entry of a part of the blood, we are reduced to mere conjecture. We must either suppose, for example, that the arteries allow their contents to transude into the parenchyma of the organs, where the lymphatics take them up; or else that the contained fluid penetrates from one set of vessels into the other through the tissue of their parietes, brought into close proximity by one another. There are some parts of the body where the arteries are reduced to ramifications so minute as no longer to transmit the globules; as, for instance, the ramifications of the central artery of the retina which run towards the posterior part of the capsule of the lens, and which, according to the micrometrical measurements of Virchow, have a diameter of only 0.0053 to 0.0049 millimetres; whilst the diameter of the globules of the blood is from 0.005 to 0.006 millimetres. Now, it is obvious that the fluid carried by these arteries must return by the venous system; but the vessels which carry it back will, in like manner, be too small to convey the globules. We must, then, exist veins also which are colourless, and of such extreme tenuity that we shall in vain attempt to distinguish them from lymphatics." (P. 223.)

This view approaches very close to the opinion held by Dr. Graves, namely, that the veins of the white tissues are identical with the lymphatics.

As to the force which propels the fluid contained within the lymphatics, M. Breschet has no satisfactory theory to offer. This force must evidently be a considerable one, as M. Carus and others have seen the thoracic duct on which a ligature had been tied burst by the mere accumulation of fluid within it, and have observed this fluid in other instances escape in the form of a jet, on making an opening in the side of the vessel. M. Breschet thinks that possibly it may be somewhat analogous to the power which circulates the sap in the vessels of plants, and that the propulsion of the fluid is chiefly determined by the *vis a tergo* or distal impulse on its first introduction within the lymphatic capillaries. According to the experiments of Tiedemann and Gmelin, the thoracic duct is insensible to mechanical and chemical stimulants; and Müller also comes to the same conclusion in reference to galvanic influence.

As to the uses of the lymphatic glands, we are still as much in the dark as before M. Breschet favoured the world with the production before us. In regard to the hypothesis of Tiedemann and Gmelin,—namely, that they serve to prepare the red colouring matter of the blood,—M. Breschet expresses his regret that these able observers had not had recourse to the microscope in confirmation of their views, of the correctness of which he seems very doubtful. His own opinion, however, is of little value on this point, as he does not appear to have bestowed any pains on the investigation of the subject.

M. Breschet's work closes with a chapter on the Pathological Anatomy of the Lymphatic System. This part of his subject is treated of under three heads: 1st. Congenital Malformations, or anomalous peculiarities in the form of its vessels and mode of their distribution; 2d. Pathological alterations. We have not space to follow him through either of these departments, but must remark that the latter, and more practically

important of the two, is much more briefly handled than we could have wished, and is very poor in original facts, as well as very incomplete even in the enumeration of already ascertained affections. It must, at the same time, be admitted that our precise knowledge in this department of pathology is still very inconsiderable.

As to the number of lymphatic trunks which go ordinarily to make up the receptaculum chyli, there is an infinite variety of opinions cited by our industrious author; a difference resulting, no doubt, partly from their number being really quite indeterminate, varying ordinarily from three to six; and partly from the superior success of modern anatomists in the injection of these vessels, which has shown them to be generally more numerous than was formerly supposed. The receptaculum itself has been so often sought for in vain in the human subject, that many good authorities have been inclined to discard the term altogether; yet an enlargement at the commencement of the thoracic duct certainly often exists. At the same time, the caution of Portal against mistaking for a dilatation of the vessel itself a thickening caused by its inferior extremity being often surrounded by a number of contorted lymphatics connected by cellular tissue, and enveloped in a cellular sheath, is well founded. Two and even three receptacula have, in some very rare instances, been found, from which as many thoracic ducts arose, and did not coalesce till after they had entered the cavity of the chest. The bifurcations and reunions of the thoracic duct, forming what Haller called "*insula*," are so frequent, that Cruikshank thought they constituted the natural state. The subdivisions are sometimes so complicated as to form almost a network.

The division of the thoracic duct at its superior half or superior third is not very rare, and in all such cases one of these branches has been found to terminate in the left subclavian vein, and the other in the right subclavian, or occasionally in the thoracic duct of the right side; which Meckel, the great authority on these subjects, looks upon as a dilatation of the anastomotic branch, which, according to him, passes from the one thoracic duct to the other in the normal condition.

The existence of two thoracic ducts completely isolated and distinct from one another is extremely rare; for they almost always anastomose more or less freely with each other, or are confounded together in some part of their progress.

Under the head of Organic Lesions, the following subjects are treated of:—physical lesions of tissues, including dilatations, and narrowings, and wounds; acute and chronic inflammations of the vessels and glands; tubercular, encephaloid, and melanotic degenerations; morbid growths, osseous, cartilaginous, and fungous; and lastly, alterations in the nature of the lymph itself.

The branches of the lymphatics are sometimes so enormously dilated as to rival the thoracic duct in capacity; and this generally depends on some obvious obstruction in their course, from tumours pressing on them, &c. They sometimes assume a general varicose condition, and at other present a number of partial dilatations, or little tumours, having much the appearance of hydatids. The thoracic duct itself is a still more frequent seat of these partial dilatations than the smaller branches of the system.

The following very interesting case of dilatation of the lymphatics was furnished to our author by M. Amussat. Its diagnosis during life was extremely obscure. This patient, a young man of nineteen years of age, of a good constitution and muscular, died after an illness of only twenty-four hours. About a year previously, a tumour of considerable size had made its appearance in each groin. An attempt had been made to prevent the increase of these tumours by wearing a double truss, which moreover relieved the painful sensation in the part, and enabled him to walk better. Having fatigued himself very much after his arrival at Paris, he was seized with acute pain in the right side of the chest and in the groin; the respiration became difficult, and was accompanied with dry cough, flushed face and headach, fever, and lancinating pain in the tumour. The condition of the patient grew worse and worse rapidly; the tongue, that was at first pale and colourless, gradually became dry; tenderness was felt in the epigastrium, unaccompanied by any tendency to vomiting or hiccup. The bowels were obstinately confined; the breathing was anxious, and dulness of sound on percussion was perceived on the right side below; the tumours were exquisitely sensible and red. A few hours afterwards delirium came on, and the tumours now presented an appearance of fluctuation, the belly became tympanitic and tender all over, and the body livid generally, with extreme prostration. On examination after death, the tumours, which had in some measure collapsed, were seen to be covered with a thin membrane bearing the impression of the pad. On removing this membrane, there was discovered an irregular knotty sac, compared, in regard to its structure, to the vesiculae seminales, and containing a foetid puriform fluid. Within the abdominal cavity was found a considerable quantity of bloody serum, but no pus nor any trace of peritonitis. The dissection of the tumour proved that no hernia was present. On the left side, the cyst containing the pus extended down in the crural sheath as far as the inferior third of the thigh. On the right side it passed, in like manner, under the crural arch, but did not extend so far down as on the other side. The peritoneum having been removed on the left side, a collection of pus was discovered, which had made its way as far as the tumours. Pus and reddish serum were found within the thorax, along with adhesions and congestion of the right lung. On turning over the thoracic viscera, the lymphatics were discovered in a state of obvious disease, being so unnaturally large that there was no difficulty in blowing them up with a pair of common kitchen bellows. The mass of iliac and crural lymphatic vessels was inflated with a straw, and tied, when there was discovered an enormous dilatation of them in the groin; and this it was which had given rise to the appearance of hernia. Another very singular circumstance was observed in this case,—namely, that the iliac glands had entirely disappeared, and seemed to be replaced by the lymphatic vessels. No direct communication with the vein was observed.

In the fourth Number of this Journal will be found a remarkable case of aneurism of the thoracic duct in the region of the solar plexus, by Dr. Albers, of Bonn; and an allusion to another where the receptaculum chyli was found dilated in a dropsical subject. Dr. Albers differs with the author in regard to the effects of the compression of this vessel in the production of dilatation, and remarks that enlarged glands and tumours

often press on it without any such effect ensuing; which he is inclined to ascribe partly to the weakness of the current within it, and also to what he assumes to be a fact,—namely, the existence of numerous anastomoses of the thoracic duct with the venous system; a fact, however, of which he adduces no adequate proof. The most frequent cases of dilatation are said to be those in which these vessels contain tuberculous or scrofulous matter.

The lymphatics may be contracted throughout nearly the whole system. Thus Hallé, in looking for the lymphatics of a woman who had died in a complete state of marasmus, in place of these vessels found, in the inguinal regions, nothing but some dryish firm filaments, of a dull white colour, somewhat resembling nervous ramifications; and here and there in their course slight enlargements, the only remaining vestiges of glands.

The effect produced by pressure on the absorbents is often, as we should expect, that they become contracted, obliterated, and finally disappear. Thus, in some cases of aneurism of the aorta, the thoracic duct has been found much diminished in size, or even entirely destroyed.

The importance of the lymphatic system in the production of disease seems, in a part of the last century, to have been considerably overrated, and a number of maladies were referred to it without any sufficient evidence. Thus, rupture of the lymphatics, the very existence of which is hypothetical, was supposed by one writer to be the cause of scrofula in the glands, of tubercle in the lungs, and of tumours in different parts of the body. By others, phthisis, elephantiasis, phlegmasia dolens, and a great number of morbid growths, were referred to the inflammation of these vessels or their glands.

The effects of inflammation on these vessels is best seen in the thoracic duct, which becomes thickened, enlarged, red, and softened in its inner coat, and contains coagulable lymph or pus; and in a more advanced stage may be converted into a fibrous impermeable cord.

Pus has been repeatedly detected, by Dupuytren, Andral, and others, in the lymphatics, leading from abscesses, without any inflammation of these vessels themselves. Hence, where they are mere carriers of this fluid, no change is perceptible in their structure. When, on the contrary, they are themselves inflamed, they present the appearance of a number of red, tense, painful cords; and the cellular membrane around, on making an incision into it, is reddish, dense, and infiltrated with a sanguinolent or puriform serum, or with pus. Having given copious extracts from the work of M. Velpeau on Inflammation of the Lymphatic System, in the fourth Number of this Journal, we do not think it necessary to dwell on the subject again here.

M. Breschet protests against concluding that inflammation of the lymphatic glands is confined to their connecting cellular tissue, from the mere circumstance of its having been found possible to make injections pass through them, when in this state;—for, first, such injection is, in point of fact, often impossible; and, secondly, the lymphatics in other situations, when quite independent of the glands, are known to be occasionally permeable, though obviously and indisputably inflamed.

Tubercular matter has been occasionally found by Cruveilhier and Andral in the lymphatic vessels themselves, as well as in the glands;

not, however, by any means so frequently as in these latter. It is not observed with equal frequency in all the glands. Laennec supposed them liable to it in the following order of frequency: the bronchial glands first, then the mediastinal, the cervical, and the mesenteric. But Lombard, from more accurate data,—namely, the dissections of the bodies of one hundred children who laboured under tubercular disease,—found that the different glands were affected in the following proportions: the bronchial in eighty-seven, the mesenteric in thirty-one, the cervical in seven, and the inguinal in three only.

The deposition of tubercular matter, as is now well known, takes place either in the form of infiltration or in masses; the former being more frequent in the bronchial glands, the latter in those of the mesentery.

Melanotic matter has been repeatedly found by M. Breschet, who has written specially on this subject, not only in the glands, but in the lymphatic vessels and in the thoracic duct itself; especially in those cases of melanosis where the disease occupied the mucous membranes, where the tumours were in a state of ramollissement, the matter semifluid, or arranged in layers on the mucous surfaces, or infiltrated into the cellular tissue.

In relation to morbid growths connected with the lymphatic system, M. B. mentions the instances, recorded by Sir Astley Cooper, of its obstruction by means of fungous growths near the lower extremity of the thoracic duct. Ossific deposits are a still more frequent cause of obstruction, both in the vessels and glands. They may take place in the vessels, either as depositions in the substance of their walls, or else in the form of masses within their cavity: the latter appears to be the more frequent. It is, however, chiefly in the glands, and more especially in the bronchial glands, that collections of calcareous matter are met with. Advanced age seems to be one of its predisposing causes, and men appear to be more liable to it than women. Two cases are cited,—one from M. Lauth, and one from M. Andral,—where these deposits co-existed with caries; in one case, of the vertebræ, and in the other, of the ilium; and M. Breschet suspects that the connexion was not merely accidental. Meckel has observed that the development of these ossifications always takes place from without inward, and that there usually remains a cavity in the interior, containing a yellowish substance in layers, bearing a resemblance to tubercular matter, and in close connexion with the osseous granules.

The section which terminates the work is on the Morbid Alterations to which the Lymph is liable. On this hitherto imperfectly investigated subject M. B. throws little new light. The lymph, as we have seen above, is sometimes contaminated by the presence of pus. A case from Lauth is alluded to, in which a sanious fluid was found in the thoracic duct in an individual who laboured under gangrene of the lower extremities. Bile, as has likewise been mentioned, has often been met with in the lymphatics of the liver; and Andral has frequently observed the fluid in the thoracic duct of icteric patients, of a yellowish hue. We have likewise seen that a fluid, like blood, has in a few instances been discovered in the same vessel and in the ramifications of the absorbents; and this is stated on the high authorities of Sabatier, Mascagni, and Spemmering. Notwithstanding the identity of colour of the fluid

so found with that of blood, Breschet is inclined to follow the example of Andral, who has prudently avoided pronouncing positively on its nature, bearing in mind the reddish tint which has occasionally been observed in the chyle and lymph by Magendie, in certain circumstances quite unconnected with injury or disease.

M. Breschet closes his work with an interesting case by the elder Sanson, of a man of forty-two years of age, and apparently healthy habit of body, who, in consequence of a slight wound in the right cheek with a blunt razor in shaving, was seized with erysipelatous redness and painful swelling of the face and neck of the same side. In the centre of the swelling on the cheek, and just around the trifling excoriation made by the razor, a few yellowish semi-transparent vesicles were observed on the third or fourth day after the accident; and in the midst of them, and corresponding to the site of the wound, a small irregular-shaped patch, brownish and dried up, was seen, and at first sight mistaken for a "pustule maligne," but, on closer examination, it was found totally free from the emphysematous feeling on pressure characteristic of that affection, and was certainly nothing but the remains of the dried-up excoriation. Being by trade a cabinet-maker, he was not necessarily exposed to any contact with morbid or putrid animal matter, which might have given rise to the affection at first suspected; nor was there any tendency to syncope, irregularity of pulse, or vomiting, epigastric pain, fever, or other general symptoms in evidence of a constitutional affection; and yet the case terminated suddenly and unexpectedly in death on the fifth night after the receipt of the above-mentioned trivial injury. The tumefaction and pain had diminished considerably under the use of simple measures during the few hours he was under M. Sanson's care. A slight difficulty of breathing had been latterly detected, and was attributed by M. Sanson to the probable extension of the tumefaction to the submucous cellular tissue about the glottis. On the evening before his death, he had slight sickness of stomach, which soon ceased of itself, and which was supposed to have been caused by some cherry-water which his wife had imprudently caused him to swallow: the stomach was unaffected, save in this single instance. On dissection, no traces of gangrene nor of putrescency were discovered, with the exception of great liquidity of the blood. The inside of the cheek presented two slight greyish excoriations. The mucous membrane of the stomach was strewn over, in that half next the pylorus, with lenticular pustules, to the number of twenty-five or thirty, depending on tumefaction of the mucous membrane, and covered over with a greyish pseudo-membranous secretion; the rest of this membrane appeared red and inflamed. The small intestines were for the most part healthy, save a few patches, which were somewhat injected, or as it were slightly ecchymosed. The tumefaction of the cellular tissue extended from the cheek and submaxillary region to the neighbourhood of the glottis; and a very slight serous infiltration of the rima glottidis was observed, but apparently quite too inconsiderable to be capable of obstructing the passage of the air. The tumefaction, in all the rest of its extent, depended on the infiltration of a blackish sanguinolent fluid. The neighbouring lymphatic glands were of a dark red colour, and one of them in front of the internal jugular vein, a little larger than natural, appeared to be infiltrated with blood, and contained some small black clots. Most of

the mesenteric, lumbar, and iliac glands were in a similar condition, and the lymphatic vessels coming from them were in some instances filled with a black and liquid blood; as was likewise the thoracic duct, in its whole course.

We have thus given a sufficiently full view of all the more important facts and hypotheses contained in M. Breschet's work. It affords, as we have already hinted, a good summary of most of what is known on the subject of the lymphatic system; but whether it is calculated to add to his fame as an original observer, or even as an ingenious theorist, there is much reason to doubt. The highest praise which can conscientiously be conferred on it is, that of furnishing the student with a convenient manual on the anatomy, physiology, and pathology of the absorbent system; and it is for this character that we have chosen it as the subject of analysis. It is not, we think, possessed of that kind of merit which would be likely to obtain for it a permanent station among the standard works on the subject. It displays, as we have already said, evident traces of haste, especially obvious in its defective mode of arrangement, its innumerable and tiresome repetitions, and, above all, the want of decisive experiments and original investigations, by the author himself, bearing on points which have been disputed or hitherto imperfectly examined. The style is very prolix and verbose, and little talent for comprehensive and accurate generalization is anywhere displayed. We cannot, however, conclude without expressing our admiration of the diligence and zeal evinced by a man of M. Breschet's time of life and advanced position in his profession, in thus continuing to give such signal proofs of the active interest which he takes in the present state of those branches of knowledge most nearly connected with his art; and of the zeal and activity with which he strives to keep up with the rapidly advancing current of general science.

ART. III.

Guy's Hospital Reports. No. IV. April, 1837. Edited by G. H. BARLOW, M.A. and L.M., and J. P. BABINGTON, M.A. &c.—London, 8vo. pp. 310; with numerous Plates.

THE present Number of this work is perhaps the most valuable that has yet appeared; and proceeding, as it does, from the officers of one hospital only, offers a striking exemplification of what might be expected from the co-operation of the officers of all the London hospitals in carrying on a publication of this kind. Highly creditable as the volume now before us is to the zeal, industry, and scientific knowledge of the gentlemen connected with Guy's Hospital, the very excellence of the papers contained in it seems to us to afford a melancholy presage that the work cannot be long-lived; as it appears impossible that a sufficient supply of materials, worthy of the now-established reputation of the work, can be long expected from so limited a body of contributors. We shall, however, make the most of the good while it lasts; and, in the present article, propose to give as full an account of all the papers in the present Number as our limits can possibly allow. In doing so, we shall, as

usual, exercise perfect freedom in stating our opinions, whether favorable or unfavorable to the respective writers. It is always much more agreeable to us to praise than to blame; but we owe a duty to our readers and to the profession, which obliges us to disregard our own feelings, whenever they can interfere with its performance.

The first paper is by Mr. KEY, and is of great excellence and value. It is entitled "*A Practical View of Lithotrity; with Remarks on the Lateral Operation of Lithotomy.*"

Lithotrity justly ranks as one of the greatest improvements in modern surgery: there is no second opinion on this head. But its inventors have retarded rather than advanced its usefulness, by urging it forward as an operation designed to supersede, *in toto*, lithotomy. The over-zeal of its advocates has damaged its reputation more than the hostility of its opponents. The merits of lithotrity have been largely extolled; but its demerits have been, unfortunately, kept out of sight. The same, no doubt, may, to a certain extent, be said of lithotomy; and, between the biassed representations of the advocates of both, no accurate information was likely to be gathered respecting the merits or demerits of either, so long as the operations remained confined to individuals so opposed. It was only by both being put to the test by the same practitioner, that a fair estimate of their respective advantages and disadvantages could be arrived at. In this capacity of unprejudiced arbiter Mr. Key appears in the communication before us. Equally an adept in both operations, and having, consequently, no interest in the advocacy of one more than the other; being, moreover, a skilful and dexterous surgeon, and fully in the confidence of the public, his testimony is of much value. As foreseen by every disinterested mind, the time has arrived when there must be a drawn-battle between the advocates of lithotrity and lithotomy,—when both operations shall receive their due meed of praise,—and when each shall be practised according to its respective merits. The whole world admire and approve of lithotrity, and give the palm to its discoverers. They have however learned that it is not, as was at first represented, an infallible means of cure in all cases, and anxiously look forward to some conclusion regarding the extent of its applicability. Mr. Key's communication makes an important instalment towards the settlement of the question, and it is desirable that the example of candour which he has set should be followed by all possessing such opportunities. The solution of a great problem,—one involving the lives of thousands,—is at stake; and as, hitherto, nothing but the sunny side of each operation, and more especially that of lithotrity, has been exhibited to public view, we shall in future give more credit to him who owns to a few disastrous terminations of either, than to him who reports all in favour of one mode of practice.

Mr. Key gives to lithotrity every credit in its application to particular individuals, but he does not consider it, "as *indiscriminately applied* to all cases, either a less painful, more safe, or more successful operation than that of lithotomy;" and he contends "that, were lithotrity to be introduced to the entire exclusion of lithotomy, society would suffer by the exchange."

The knife will, leaving out the chance of accidents, cure all cases in which the lithotrite can be used, and it possesses the great superiority of

being effectual in many instances where that instrument would be prejudicial. It cannot, therefore, be ever completely superseded.

In evidence of the failure of the lithotrite under particular circumstances, and of its success under others, Mr. Key reports some cases which he met in his own practice: other instances—drawbacks on the repute of lithotrity,—he knows of, but which, not being his own patients, he has abstained from reporting. Mr. Key's delicacy in the matter is, perhaps, laudable; but not so the secrecy of those who treated the diseases, and whose duty it was, for the benefit of the profession and of mankind, to have given them publicity.

The *first* case reported by Mr. Key was that of a gentleman on whom M. Civiale had operated. This gentleman, though reported as cured, died, in all the agony of stone in the bladder, in less than two months from the operation.

In the *second* case, a small stone was broken up by a well-known operator. This gentleman died of typhoid symptoms, shortly after his return to the country, from an abscess at the base of the prostate gland.

In the *third* case, after Mr. Key had failed in the operation of lithotrity, the stone was broken by a skilful lithotritist. In twelve months the patient died of diseased bladder; and, on examination, several stones were found.

The *fourth* case was a man of seventy, and declared by the lithotritist to be unfit for his mode of operation, on account of the large size of the stone, the age of the patient, the irritable condition of the bladder, and the enlarged state of the prostate gland. Lithotomy was practised; the patient was convalescent in a fortnight; and five years afterwards was well, and free from any symptoms of stone.

In the *fifth* case, the calculus was said to have been successfully broken down. The patient died not long after, and six or seven stones were found in the bladder, formed on the remnants of the original calculus.

The *sixth* case, a child nine years of age, was cut for the stone by Mr. Key. Six months after, another small stone was discovered. This was crushed, and the patient left town, *cured*; but died shortly after, in great suffering.

The *seventh* was a case of small stone, well adapted for lithotrity. The operation was performed at several sittings, and with success. The patient remained well two years after.

Case eighth. A gentleman of eighty, with irritable bladder and enlarged prostate. Objected to by a lithotritist. Cut by Mr. Key: twenty-seven calculi abstracted, and a cure accomplished.

Case ninth. A patient, after lithotrity, laboured under symptoms indicative of stone in the bladder. He was seized with bleedings from the bladder, and died in a few weeks. Several calculi were found, and each, when broken, was discovered to be formed on a fragment of crushed stone.

The *tenth* case is less satisfactory, as no dates are given. The gentleman was operated on several times by the lithotritist; and, at the time of Mr. Key's report, he appeared cured.

Case eleventh. Refused by the lithotritist, on account of the extreme irritability of the bladder and enlargement of the prostate gland. Lithotomy, nevertheless, was performed, and with success.

The *twelfth* case was that of a surgeon. The stone was crushed after three sittings, and the patient obtained entire relief from his disorder.

"Of these twelve patients, three were cured, and three underwent the operation of lithotomy. Of the remaining six who died, one sunk with abscess in the prostate gland, soon after the operation; four with protracted sufferings, in consequence of fragments remaining in the bladder; and one with disease of the bladder, brought on or aggravated by the operation." Mr. Key "believes that no surgeon conversant with lithotomy would expect so unsuccessful a result in these cases, if they had been all submitted to the knife. The three patients who could not undergo the operation of lithotrity, but were afterwards compelled to seek relief from the knife, recovered; and it is but reasonable to conclude that some of the unsuccessful cases would have had a better result, had they been subjected to the same operation." These patients were all treated by the most dexterous operators; all that lithotrity could effect was done for them; and the result clearly shows that lithotrity is not of universal application. We have ourselves known of instances in which incontinence of urine, irritable bladder, fresh stones, and even death in the course of a few months, have followed the employment of the lithotrite. But, as the patients were in other hands, and as no mention has been made of their misfortunes, we do not feel at liberty to speak of them further. We cannot however but feel, with Mr. Key, that, by keeping such cases in the background, the character of the operation of lithotrity suffers much disparagement. It is, no doubt, a most important invention, and if its advocates, instead of urging it forward to the exclusion of lithotomy, were to recommend and use it as an adjunct to that operation,—the only place which it is ever destined to hold,—they would much enhance the value of the improvement. A faithful narration of the varied results in all the cases which occur would give to each operation its proper station in usefulness; would enable us to determine, by comparison, where the one and where the other mode of practice should be adopted, and would save us from the well-merited imputation of perpetually floundering, through uncertainty, into error. Lithotritists should, themselves, endeavour to be the first to determine these points. Half the glory of the discovery will be lost by leaving to others the merit of pruning it down and fitting it in its proper sphere of usefulness.

Mr. Key, though a lithotritist as well as lithotomist, has, perhaps, taken rather a gloomy view of the new operation; but, as his only object has been to fill up a great blank in the history of lithotrity, left by the concealment of its disadvantages, he cannot be charged with partiality. We are infinitely more obliged to him for the narration of a few failures, with the explanation of the causes of these failures, than if he had reported one hundred unalloyed cases. By the term *cure*, Mr. Key and we understand a perfect freedom from the consequences of stone in the bladder,—not a temporary alleviation. The final result must be known before any case shall be deemed worthy of this epithet.

Since commencing the practice of lithotrity, Mr. Key has found that more than one-half the number of adults who have come under his care have been fit subjects for the operation; and that, in the majority of persons afflicted with calculus, it has decided advantages over lithotomy. One among the principal advantages which lithotrity has conferred upon surgery, is the early application which patients are induced to make for

the relief of their disorder. The prospect of being cured without cutting is an important consideration with an invalid, and leads him to seek for an early investigation into his malady, with a view to its easy removal. Mr. Key has even found patients pleased with the discovery of a stone, under the impression that, by the new operation, they would be easily and certainly cured. The introduction of lithotrity has also led to an improved method of examining for the stone, by which calculi of a small size are more readily discovered now than formerly. Large stones are now very uncommon; and hence lithotrity will become even more employed as it is made more generally known.

Mr. Key reviews the dangers incidental to lithotomy, and endeavours to determine how far the new operation enables us to avoid them. There is no period of life at which lithotomy is impracticable; but infancy, the age for which lithotrity is peculiarly unfitted, is that in which the knife is most successful. Mr. Key considers "that it is difficult to mention any operation in surgery so uniformly successful as lithotomy is in children." He has cut a child for stone at the early age of sixteen months, and assisted at an operation when the patient had only completed its thirteenth month. The lithotrite can never become a substitute for the knife in children. Indeed, the latter is so safe that a substitute can scarcely be said to be required. The same rule holds good up to near the age of puberty. In the middle periods of life, the principal danger in lithotomy is hemorrhage; death from which, when it occurs, is usually gradual. Mr. Key is of opinion that loss of blood has a bad effect on the issue of all surgical operations, and he rarely ever bleeds a patient before any severe operation. In this practice the author is, we believe, joined by most surgeons of experience.

Infiltration of the cellular membrane with urine is another danger. It occurs more frequently in the adult than the young subject, and may be either the result of injury done to the deep perineal fascia, or of an unhealthy form of inflammation, which breaks down and destroys the barrier that nature opposes to the infiltration; or, more often still, of the violence committed in dragging the stone through the incision in the gland. Mr. Key considers that contusion of the prostate is worse than its laceration; and that, in this respect, there is a resemblance between the effects of lithotomy and lithotrity; for in both it is the violence done to the neck of the bladder that destroys the patient, in the majority of fatal cases. The author explains the circumstances under which such violence is usually produced, and gives some useful suggestions on the best mode of avoiding them.

Another source of danger, to which a wound in the perineum exposes the patient, is peritonitis; an affection which is generally independent of injury to the membrane, and would appear to be propagated to it by the cellular tissue of the perineum.

Lithotomy is almost free from the risk of leaving fragments in the bladder, but it exposes the rectum to danger. A wound is, however, seldom inflicted on this bowel by an expert hand. Mr. Key has only known of one case of the kind, and in that no untoward circumstances followed. Another aged individual is mentioned by him, in whom, in consequence of an abscess, the urine continually flowed from the bladder into the rectum, without being productive of any bad consequences.

These cases, although they may have induced Mr. Key to attach little importance to a wound of the rectum, are insufficient to authorize such as a general conclusion. We have ourselves known of a case in which an accidental wound of the rectum in lithotomy healed, without retarding the cure; but, on the other hand, we have heard of another where the very opposite result followed. We have seen a third, wherein the formation of a fistulous aperture between the bladder and rectum, by sloughing, was followed by distressing and fatal consequences; and a fourth, in which a fistula in perineo, the consequence of stricture, burrowing its way into the rectum, became the immediate cause of the patient's death. The circumstances on which all these varieties of results depend are not yet sufficiently made out.

"The after-consequences of the operation, of an untoward kind, may be summed up in the accidents of fistula in perineo, impotency, and incontinence of urine." Of these Mr. Key has had but little experience. Incontinence is the most common, and is more likely to occur in children than adults. In the former, as they approach the age of puberty, the power of retention becomes increased.

In reference to *lithotritry*, the author considers the circumstances that render it practicable, the mode of performing, and the dangers attending it. He also describes the several steps of the operation, and lays down rules to assist in determining which operation is the more eligible in each particular case.

The size of a calculus forms no objection to lithotritry, but, as several sittings will be necessary, it is essential that in such a case the bladder should be free from disease and not very irritable, as otherwise the fragments cause so much irritation as to render the repetition of the operation not only dangerous but impossible. We should pay more regard to the general condition of the patient and of his bladder than to the size of the stone. Adult age is that best adapted for lithotritry; as, here, the urethra is sufficiently large to admit instruments and to discharge the fragments without difficulty; the prostate is healthy and the neck of the bladder sound, and little exposed to the dangers of inflammation; the bladder itself is also in a vigorous state for the expulsion of the fragments. The aged subject, however, is not less adapted to the operation than the younger adults, if he be free from the common incidents of age. If the parts in the aged are sound, the operation is especially successful in them. The large size of the urethra allows fragments of extraordinary size to pass. Mr. Key possesses a piece of calculus discharged by an elderly gentleman, eight lines and a half in length and four and a half across.

"The state of the bladder is, perhaps, of all the circumstances that the lithotritist has to consider, the most important, and one on which the propriety of performing the operation will mainly hinge. Three conditions of this organ are necessary; and these must be ascertained by preliminary observations and trials, before the operation is determined on:—1st. It must be capable of holding a sufficient quantity of water to facilitate the working of the percussor. 2dly. It must be free from that extreme irritability that often attends the latter stages of calculous disorders; and 3dly, Not prone to inflammation from slight excitement." (P. 35.)

Amongst those who apply for advice soon after the symptoms have begun to declare themselves, it is rare to meet with any difficulty in

injecting water sufficient for the purpose of giving space for the operation: not so, when the bladder becomes morbidly irritable from the continued presence of the stone. Mr. Key has remarked that the most formidable symptoms, such as copious discharge of dark-coloured, phosphatic mucus, great frequency and pain in making water, quick pulse, furred tongue, rigors, &c., will often yield to a system of diet and medicine so as to bring a patient, unexpectedly, into a condition to bear the operation of lithotrity. Regarding rigors after the use of instruments, the author makes an important distinction in them. Where the rigor is not followed by pyrexia, it indicates nothing more than the degree of irritation produced by the sound, and may not stand in the way of the operation; but, when followed by pyrexia, it is an evidence of local inflammation; and such a state is most unfavorable to lithotrity. The disposition to inflammation is often kept up by improper food, especially drink, and is indicated by a plethoric state of the system and flushed countenance. Such a condition is unlike that state of bladder or kidneys, the effect of commencing disorganization, and may be overcome: there is not the healthy aspect of mere temporary excitement; there is generally more pallor of countenance, amounting to a pasty state of the skin, with an occasional streak or patch of colour.

A morbid condition of the *cervix vesicæ*—a principal source of irritability of the bladder,—may be often diminished by the occasional and careful introduction of a large instrument; more especially, if assisted by a regulated diet, and alkaline and saline medicines. Without such preparation, a high and dangerous inflammation will, even in a person enjoying good health, most likely be kindled up by the employment of the lithotrite. Mr. Key reports an instructive case in which he operated without sufficiently preparing the patient. Hemorrhage and retention of urine followed. He opened the neck of the bladder by the lateral operation, and gave exit to six ounces of coagulum and a small calculus: the patient recovered perfectly. The gentleman suffered less pain from the knife than the lithotrite; but, as Mr. K. states, when persons are well prepared, the pain given by the lithotrite is inconsiderable.

All the author's practical directions respecting the operation are excellent, and deserve to be borne in mind. The bladder should not be too much distended. The end of the catheter should be fully introduced into the bladder before injection; as, otherwise, the eyes of the instrument may be obstructed by the sides of the prostate gland, especially if enlarged. The rectum should be emptied by an enema an hour before the operation, as a loaded state of that bowel may render the bladder irritable and indisposed to expand under injection. When obstruction arises from unusual fulness of the prostate, the operation should be deferred. Force ought to be particularly avoided. Before the blades of the instrument are expanded, the surgeon should feel assured of its being passed beyond the prostate, and fairly lodged in the bladder. Such precaution is particularly necessary where any enlargement of the prostate exists. In all cases the end of the lithotrite should move freely in the bladder before any attempt is made to open the blades. The best test of the crushing process being conducted properly is the absence of pain and hemorrhage. When the bladder is not irritable, the seizure of the fragments may be repeated from five to eight times at one sitting, and a

large portion of the stone reduced to a state fit for expulsion. The sensations of the patient become the surgeon's best guide in repeating the operation at the first setting. Healthy persons are generally able to attend to their usual occupations after the proper use of the instruments. The pain caused by the stone will not unfrequently be relieved after one sitting, and the operator may be misled by the false estimate made by the patient of his feelings, leading him to defer, too long, the steps necessary for the complete removal of the fragments. While the bladder continues sound, these fragments may remain unchanged, but, when otherwise, they become nuclei for a rapid deposit of phosphates, and by their size give rise to much aggravation of distress.

Mr. Key has planned and practised an improvement designed to effect the desirable object of breaking up the stone at one sitting, and of thereby saving the inconvenience of the frequent application of the lithotrite. The invention consists in the addition of a net to be thrown round the stone, when caught by the blades, by means of two hidden branches. He considers that, by the net, the fragments left by the first act of crushing can be all readily brought in succession between the teeth of the instrument; and he reports four cases in which success followed its use. We will not, at present, venture farther, in criticism on this point, than to remark that the addition of the net appears to add considerably to the complexity of an already truly complicated piece of machinery; and no one knows better than Mr. Key that simplification of operations, rather than additions upon their difficulties, is a great desideratum in surgery. As we could not fully convey Mr. Key's meaning, in reference to his improvement in the short space allotted to us, we must refer those who may be desirous of trying it to the plates and description of his instrument, as given by himself. We cannot do better than to terminate this abstract of Mr. Key's instructive paper by a quotation from his concluding paragraph, which contains advice of the highest importance.

"In trying to lay down rules for the performance of an operation like lithotomy, that requires and depends upon manual skill, I feel that the best advice the young practitioner can receive is, to gain a familiar acquaintance with his instruments, by frequently operating on the subject. No rules can supply the place of practical dexterity; and this, as in all other mechanical arts, is to be acquired only by continued practice. Theory will do little for the lithotomist. If he expects that a general acquaintance with its principles, and with the action of an instrument, will render him expert in the performance of the operation, he will find that he will obtain experience after repeated failures, and at the expense of severe suffering and hazard to his patient." (P. 55.)

The second paper, which is, perhaps, one of the least important in the volume, contains "*Observations on the Diagnosis of Pneumonia*, by Dr. ADDISON," who very properly protests against our resting in satisfied inaction, even in the present very advanced stage of our knowledge of the diagnosis of thoracic diseases. "The main object of this brief communication (he says,) is to make some addition, however trifling, to the ordinary means of diagnosis, since experience has forced upon me the conviction that there are few acute diseases more frequently mistaken or overlooked than pneumonia, to the detriment of the patient and the no small embarrassment of the practitioner."

In his preliminary remarks, Dr. Addison notices a class of cases which

he regards as sometimes constituting a species of phthisis, although in reality of inflammatory origin, and not tuberculous.

"In some instances, however, when the albuminous matter thrown out is of the more plastic and organizable kind, it fails to be entirely absorbed, and part of it permanently remains. Under these circumstances we find it, at an after-period, either in small, detached, and more or less rounded masses, or more extensively and more irregularly diffused through the pulmonary tissue. When distributed in small insulated portions, I believe it to constitute one of the forms of albuminous deposit, indiscriminately called tubercles; whereas, when more extensively and irregularly diffused, it has, in like manner, been regarded as a form of tubercular infiltration. The history, however, of the patient's case, in many instances, as well as the local appearances themselves, lead me to the conclusion that they are merely the result of a previous attack of pneumonia." (P. 60.)

Evidence of their inflammatory origin is found, he thinks, in the thickening and adhesions of the adjacent pleuræ, which sometimes, as well as the surrounding pulmonary tissue, present also a darkened appearance; and he regards this view of the origin of these albuminous deposits as serving to explain why they are much less uniformly found in the apices of the lungs than ordinary tubercles. He believes in their occasional conversion into calcareous masses, as well as in their still more frequent softening and breaking down into vomicæ, which, as the vital influence by which they are retained in their integrity is extremely slender, readily takes place when inflammation is casually set up around them; an event of frequent occurrence in weak and exhausted constitutions.

The characteristic symptoms of pneumonia enumerated by Laennec, independent of those cognizable by auscultation and percussion, are—obtuse and deep-seated pain in the chest, dyspnœa, hurried respiration, cough, and peculiar expectoration. But all these, it is well known, may be absent; and Dr. Addison has persuaded himself that all are really absent in the simplest form of the disease, and that its presence is hence very frequently altogether overlooked. The cases of pneumonia in which the above symptoms are met with, though confessedly the most frequent in practice, are, according to him, really cases of complication.

"In *simple pneumonia*, after chilliness, shivering, feebleness, and depression, the patient experiences, for the most part, strongly marked symptoms of febrile reaction, giddiness, confusion, and sometimes intense pain in the head; occasionally delirium, especially towards night; *the skin acquires a pungent heat*, generally accompanied by dryness, more rarely by moisture; the pulse is full and strong, perhaps labouring and sluggish; the face is usually more or less suffused with a livid flush, accompanied by an expression of distress; the tongue is foul; its substance is more injected than in ordinary phlegmasiæ, and in a short time it manifests a tendency to become dry and brownish; the respiration is somewhat hurried, but *there is seldom any very obvious cough or expectoration, and sometimes none at all*; in short, the whole assemblage of symptoms bears a most striking resemblance to those of a severe attack of common continued fever of the typhoid type, for which it is so repeatedly mistaken. If this form of the disease occur in moderately good constitutions, and is overlooked, especially if stimulants be administered on the supposition of its being a severe case of typhoid fever, it very commonly happens that the general prostration increases, the delirium or oppression of the brain is aggravated, the tongue gets dry and black, and the teeth covered with sordes; the breathing becomes more hurried, occasionally with a frequent slight hacking cough, and now and then a little bloody expectoration; the pulse gets flaccid, frequent, and feeble; and at length the patient dies." (P. 62.)

To an attentive observer, some difference even in the *general symp-*

toms of the two affections is perceivable. In pneumonia, the countenance, though congested and somewhat distressed, has not the dejection and stupidity so remarkable in fever, and the patient, on being roused, even though delirium should exist, commonly evinces a clearness and vigour of intellect not found in the latter affection; nor is the contrast between the vividly injected tongue and its white or grey fur so striking; or we have, as Dr. A. expresses it, more the tongue of a phlegmasia than of a fever. "But, of all the symptoms of pneumonia, (says Dr. A.) the most constant and conclusive, in a diagnostic point of view, is a *pungent heat* of the surface." By this symptom alone, the first stage of pneumonia may, he thinks, in most instances, be readily recognized.

With regard to this symptom, the bringing forward of which in a prominent point of view seems to have been the chief object of the present communication, we cannot help feeling that its value, even were we to admit its universal presence in pneumonia, (which our own experience does not authorize us to do,) is very seriously reduced (and especially just in the commencement of the disease, when such a diagnostic is most wanted,) by the circumstance of its frequency in very many other acute affections; amongst which Dr. A. himself enumerates continued fevers, and more especially those of children; the eruptive fevers, and particularly scarlatina; erysipelas, and some forms of renal dropsy; and the list might be much extended.

As to the cough and expectoration so commonly observed in pneumonia, Dr. A. strongly suspects that they depend, not on the inflammation of the air-cells themselves, but altogether on the accidental implication of the bronchial tubes; and that it is only when the smaller tubes are inflamed that we have the viscid expectoration, erroneously, as he thinks, looked upon as a characteristic of pneumonia in general. The complication, however, is admitted to be more frequently present than absent.

Pain, he conceives, is seldom felt in any position from pneumonia alone, in the absence of pleuritis and of inflammation of the bronchi; and when either of these exists, the pain which accompanies it is of a distinct and peculiar character, being acute and penetrating if the former be present, and consisting in a sensation of burning, tearing, and general soreness and rawness, if the latter.

The paper next in order is a very valuable one, by Mr. ALFRED S. TAYLOR, lecturer on Medical Jurisprudence at the hospital, and author of the admirable elementary work on that branch of medical science. It is entitled "*Two Cases of Fatal Poisoning by Arsenious Acid, with Remarks on the Solubility of that Poison, in Water and other Menstrua.*" It contains many very important practical hints, and displays much talent for scientific investigation.

The discrepancies which prevail amongst authors, even of the highest authority, as to the degree of solubility of arsenic in water, both at ordinary temperatures and at the boiling point, are very remarkable. The researches of Mr. Taylor on this head, which is one of such obvious importance in a medico-legal point of view, seem to have been conducted with such a degree of accuracy and caution, as to entitle them to implicit confidence.

The first case is that of a female, of twenty-five years of age, who had

swallowed about forty grains of arsenic in coarse powder, mixed with water. In about an hour afterwards she became very ill, and vomited, and pain in the stomach, great thirst, and a sense of constriction in the throat. She was brought into Guy's Hospital about seven hours after the poison had been taken; emetics and mucilaginous drinks having been administered, with a slight temporary alleviation of the symptoms, in the interim. Her countenance was now pale and anxious, the extremities cold; there was occasional vomiting, *great thirst*; tongue moist, *it very red*; *the pain in the stomach was not great, and not increased by pressure*; the pulse 134, very irregular, but rather full. There was no pain in the head, and her mental faculties were unimpaired. A mixture of equal parts of oil and lime-water was introduced into the stomach by means of the stomach-pump, with a view to envelope any residuary particles of the poison, as well as to sheath the coats of the organ. The stomach was first well washed out with this mixture, and then about three ounces of it, along with forty drops of tincture of opium, were injected into it, and allowed to remain.

She died about *fifteen* hours after having taken the poison, in a slight momentary convulsive fit, having become for some time previously very restless. *Extreme thirst* continued throughout to be the most prominent symptom, but was unaccompanied by any increase of pain in the stomach or any headach, and she was sensible almost to the very last.

On dissection, some particles of arsenic were found in the stomach, notwithstanding the care which had been used for its removal during life. The rugæ of this organ, which were very prominent, were vascular on their edges; whilst there were here and there dark-coloured patches of blood extravasated beneath the mucous membrane. There was great vascularity in the upper part of the stomach, and three distinct vermilion-coloured lines running between the pyloric and cardiac orifices.

"The most striking morbid changes, however, in the stomach existed near the greater curvature towards the pyloric extremity. Here there was a large prominent oval patch of thickened membrane, about three inches in length and two inches in breadth. This patch was in the first instance covered with a dense layer of opaque mucus, with difficulty separable, containing small quantities of arsenic diffused in a white pasty mass. When the surface was washed, it was seen to be of a yellowish colour in the centre; and it was surrounded by a dark margin, as of extravasated blood. At this part the coats of the stomach were at least three-quarters of an inch in thickness. There was no trace of ulceration or corrosion in any part of the mucous membrane. The peritoneal coat was slightly injected."

The small intestines contained a great quantity of viscid mucus tinged with bile, and presented obvious marks of inflammation, especially in the jejunum.

The period at which the symptoms commenced was, as Mr. T. remarks, about the ordinary one; viz. an hour after taking the poison. The amount of pain was unusually slight; for it is for the most part so excruciating as to be compared by the sufferers to a fire burning within the body, and is almost always aggravated by pressure. It is well, however, to know that this symptom may be occasionally almost entirely absent, a fact already alluded to by Orfila and Christison; and that death in such cases may be even more than usually rapid, and the cadaveric changes consequently less considerable. In such, likewise, cerebral

symptoms are for the most part manifest. But here, again, this case was peculiar: the mental faculties remained unimpaired to the last, and there were neither comatose symptoms nor convulsions till just the very last moment.

Thirst has been observed by Mr. T. to be a very prominent symptom in three other cases that fell under his observation, as well as in this one, and he thinks it has scarcely been dwelt on enough by Christison and other British toxicologists. Professor Martini looks upon it, when conjoined with dryness and constriction of the fauces, as affording the most certain evidence of irritant poisoning.

The lime-water was not employed with any view to its chemical antidotal powers, which are now generally exploded; the arsenite of lime being easily redissolved in water, if any acid or even slight excess of the poison be present, and being in itself, though insoluble in pure water, capable of acting deleteriously.

The average period of death in cases of poisoning by arsenic, when it is taken in any considerable quantity, may be stated at from six to twenty-four hours. But it is well to know that there are cases on record where the fatal event has occurred within two hours and a half, or even, as would seem from a case given by Remer, within a still shorter period.

In Mr. T.'s case there was neither ulceration nor gangrene; and he suggests the probability of effusion of blood beneath the mucous membrane having been occasionally mistaken for this latter phenomenon. The thickening of the coats of the stomach he is disposed to consider as of much more frequent occurrence than their perforation.

In regard to the analysis for the detection of arsenic: when it has been taken in the form of a coarse powder, we may sometimes shorten our labour much by availing ourselves of its greater specific gravity, as compared with the viscid fluid in which it is entangled. Thus, by diluting the contents of the stomach largely with distilled water, so as to diminish their consistency, and agitating for a moment violently in a tall glass vessel tapering to a point, and then letting it stand, the heavier particles settle to the bottom, and may, without further trouble, be submitted to examination.

Into the details of the analysis we have not room to enter, but would refer our readers to the paper itself as a good example of the manner in which investigations of this kind should be conducted. The sesquisulphuret of arsenic having been formed, was identified by its insolubility in the mineral acids, by its perfect solubility in liquor ammoniæ, and finally by its yielding a ring of metallic arsenic when slowly heated with four times its weight of black flux. Mr. Marsh's apparatus for the detection of minute quantities of arsenious acid, as well as of the soluble salts of the metal, by passing hydrogen gas, in its nascent state, through the fluid containing them; burning the arseniuretted hydrogen so obtained, and holding a clean plate of glass over the flame, so as to have formed thereon a stain of metallic arsenic,—is spoken of with much approbation, as affording a very delicate and satisfactory test. The precautions requisite to ensure its accuracy are stated at length, and the objections which have been made to its use satisfactorily answered. "In respect to its delicacy, (says Mr. T.,) I have obtained sublimate from $\frac{1}{100}$ of a grain in 45,000 parts of water."

In the second case (for the details of which we have not space,) there was vomiting and violent diarrhœa, followed by a tendency to coma, with great restlessness and cramps in the legs; a rapid, feeble, and irregular pulse; pain in the abdomen, increased by pressure, &c. Death ensued within seventeen hours. The mucous membrane of the stomach was found inflamed throughout, and in many parts ulcerated, and especially on the summits of the rugæ. No arsenic was found within the organ, though about an ounce was supposed to have been swallowed; a circumstance which is attributed to the extent to which the vomiting and diarrhœa had been carried. The intestines, as well as the œsophagus, larynx, and trachea, were all highly inflamed. The treatment consisted in the use of the stomach-pump and of albumen, the exhibition of an emetic of sulphate of zinc, and copious draughts of tepid water to encourage vomiting.

The occurrence of ulceration within so short a period is unusual. Christison thought it was rarely to be met with, save where the case had lasted at least two days. Menstruation was present in the above instance. Cases are on record where this phenomenon has been recalled long before its stated period by arsenical poisoning, though there was no evidence but such was the fact here.

Some obstruction was thrown in the way of the analysis of the fluids ejected from the stomach during life, by the presence of sulphate of zinc. The operation with sulphuretted hydrogen failed; but Marsh's "hydrogen test," already alluded to, rendered the presence of arsenic quite obvious, though the quantity operated on was extremely minute.

The copper and the silver test are both rejected by Mr. Taylor, except when operating on a clear solution of the poison in which there is certainly no organic matter, nor any foreign salt, alkaline or metallic.

Common salt, which is so very likely to be met with in the stomach, mixed with arsenic, not only destroys the action of the silver test, but renders that of the copper also ambiguous. Now, though, by a complicated process, this substance may, it is true, be got rid of, yet the "hydrogen test," as well as the reduction of the precipitated sulphuret, are so entirely satisfactory as to render further and more operose proofs altogether superfluous. The operator must not, however, forget that the presence of a metallic salt, such as the sulphate of copper or of zinc, or tartarized antimony, so often exhibited as emetics in these cases, might give rise to some ambiguity in the reaction of sulphuretted hydrogen. So likewise, if a compound poison were swallowed, (such as a mixture of corrosive sublimate with arsenic,) the analysis might be seriously embarrassed, unless the operator were aware of the effects of sulphuretted hydrogen on particular metallic salts. But such mixtures do not at all interfere with the results afforded by Mr. Marsh's apparatus.

The paper concludes with some remarks on the solubility of arsenious acid in water and other menstrua. The affinity between arsenic and water at low temperatures is very slight. Even when boiling water is poured on it, and allowed to cool, the quantity dissolved, though greater than in the preceding instance, is still remarkably small, and much less than the quantity retained in a cold saturated solution prepared by boiling the arsenic and water together for several hours. Various explanations of this have been attempted, none of which are satisfactory. Thus

Fischer, a German chemist, conceived that the arsenious acid underwent a change during the process of boiling, one portion of it being rendered more soluble by abstracting oxygen from the remainder; and, in conformity with this view, he asserts that the portion which separates by crystallization on cooling, is very much less soluble than common arsenious acid. But Mr. Taylor shows satisfactorily that this explanation is erroneous; the diminution of solubility in the crystallized portion being at most very inconsiderable, and only such as may be ascribed, as well as the change of colour to a dusky brown or yellowish colour, to the altered arrangement and increased force of cohesion of the crystalline particles. There is, in fact, no conversion of arsenious into arsenic acid. "We know (says Mr. T.,) that the effect of heat in rendering solids more soluble in water is due to this agent increasing the force of affinity between the solid and the liquid with some bodies; and arsenious acid is a direct instance of this. It is necessary that the heat should be for some time applied, in order that the affinity of water for this body should be raised to its maximum degree."

Guibourt, one of the chief authorities on the subject of the solubility of arsenious acid, and who is quoted largely by Berzelius and Dumas, noticed a great difference in solubility between the opaque kind (common arsenic) and the transparent, and in favour of the former; a result which is, however, as we have seen, quite at variance with Mr. Taylor's experience. Guibourt's results with regard to the solubility of the opaque variety are as follows:

1000 parts of water, at 60°,	dissolve	12.5, or $\frac{1}{80}$.
1000 — at 212°,	—	114.7, or $\frac{1}{8}$.
1000 — at 212° (cooled to 60°)		29.0, or $\frac{1}{34}$.

An extraordinary difference exists amongst those chemists who have experimented on this subject. Thus, 1000 parts of temperate water dissolved, of arsenious acid, according to Despretz, $\frac{1}{20}$;—according to La Grange, $\frac{1}{24}$;—Bucholz, $\frac{1}{30}$;—Guibourt, $\frac{1}{80}$;—Hahnemann, $\frac{1}{98}$;—Spulmann, $\frac{1}{98}$;—Ure, $\frac{1}{33}$;—Klaproth, $\frac{1}{40}$;—Fischer, $\frac{1}{200}$.

This singular discrepancy is attempted to be accounted for by Mr. Taylor, on the supposition that some of these experimentalists made their deductions from actual solution in cold water, and others from solutions formed by boiling, and allowed to cool before examination.

The difference in regard to the solubility in water at the boiling point, as stated by different experimentalists, is also startling. Thus, 1000 parts of boiling water dissolve, according to Guibourt, $\frac{1}{8}$ of their weight;—Bucholz, $\frac{1}{12}$;—Klaproth, $\frac{1}{14}$;—Ure, $\frac{1}{14}$;—La Grange, $\frac{1}{15}$;—De la Métherie, $\frac{1}{14}$;—Vogel, $\frac{1}{80}$;—Beaumé, $\frac{1}{84}$;—Navier, $\frac{1}{80}$;—Nasse, $\frac{1}{80}$.

This disagreement, Mr. Taylor thinks, may be explained by supposing that a heat of 212° may have been applied for different periods of time, and that the specimens of arsenious acid employed varied in their degree of solubility. The specific gravity of a mass of arsenious acid which had been kept for four years, and was perfectly opaque, but still slightly crystalline in its newly fractured surface, was found to be 3.529; whilst that of a recently prepared specimen, which was perfectly transparent, but had a slightly yellowish tinge, was 3.798.

Arsenious acid is soluble in water, alcohol, and oils. Mr. T.'s expe-

nents were directed to the two former menstrua. We must here again nit ourselves to his general deductions.

"From the whole of these experiments, I may perhaps be permitted to draw the following conclusions:

"1. That hot water, allowed to cool from 212° on this poison dissolves less than $\frac{1}{100}$ its weight, or about $1\frac{1}{2}$ grains to each ounce of water.

"2. That water boiled for an hour in this substance dissolves $\frac{1}{4}$ of its weight, or her more than twenty grains to each ounce.

"3. That this water, on perfect cooling, does not retain more than about $\frac{1}{10}$ of its ight, or twelve grains to the ounce.

"4. That water boiled on arsenious acid to the most perfect state of saturation, after ring stood six months, holds dissolved about $\frac{1}{10}$ of its weight, or thirteen grains to ounce.

"5. That there is no observable difference in the solubility of the transparent and aque varieties of arsenious acid.

"6. That water at ordinary temperatures will dissolve from about $\frac{1}{1000}$ to $\frac{1}{200}$ of its ight, or from half a grain to one grain to each ounce of solvent, according to cir- cumstances.

"7. That the presence of organic matter in a liquid is an obstacle to the solution the poison. Thus, hot tea and cold porter will not take up more than about half a in to the ounce; while hot coffee and cold brandy do not dissolve more than a in to the ounce. (Alcohol dissolves more than twice that quantity, or, according Brande, eight times.)

"There are two points of practical importance which these experiments suggest in lation to the analysis of organic liquids suspected to contain arsenic, especially en the liquids have been obtained from the stomach or intestines: first, to dilute e liquid considerably with water; and, secondly, to boil the liquid thus diluted for least two or three hours. By attending to the first point, we in a great degree stroy the effect of organic matter in impairing the solubility of the poison; and by e second we insure the solution of every portion of poison which may be present." p. 102-3.)

It was observed, in the experiments alluded to, that the arsenic which as in the form of a fine powder occasionally floated in part on the sur- ce of the cold as well as the boiling water, in a film or in small lumps; id in part adhered to the sides of the vessel, whilst the remainder sunk the bottom. The rapidity of boiling made a considerable difference the quantity dissolved; water which boils violently taking up as much half an hour as that kept gently boiling in twice that time. The length 'time during which the boiling is kept up also makes, all other things ing equal, a notable difference in the quantity dissolved.

It is deduced, from Mr. T.'s experiments, that very nearly the same antity of arsenious acid is taken up by hot water allowed to cool, and / cold water poured on this substance in powder, provided the vessel ntaining the cold water be frequently agitated. It is a curious, and therto an unexplained fact, that water should retain so much more of is poison, as from ten to twenty times the quantity, when *perfectly oled* from a *boiling* saturated solution, that it will take up at common mperatures without heat.

When administered in the state of a perfectly transparent saturated lution, as in a case which was the subject of trial at Mayence, about o years ago, its effects may prove most rapid, and at the same time no ace of arsenic be found, on analyzing the contents of the viscera after ath.

As to the menstrua ordinarily employed, suicides generally prefer

water, whilst murderers select some liquid article of food, such as tea, coffee, brandy, or gruel, which they conceive calculated to conceal the supposed disagreeable taste of the poison. It has not, however, if pure, any of that acrid, caustic flavour attributed to it in several medico-legal works, but (as stated by Christison,) merely a faintly sweetish taste. The solubility of arsenic is much impaired by the presence of organic matter. No certain opinion can be expressed respecting the solvent powers of gruel, broth, or liquids of a similarly viscid nature: "they mechanically suspend the particles of arsenic exactly in proportion to their viscosity, and thus a very powerful dose of poison may be administered in a small quantity of liquid." Hahnemann found that water impregnated with mucus or milk dissolved the poison with difficulty.

In taking our leave of this excellent paper, we would once more strongly recommend its careful perusal to all persons interested in the examination of the medico-legal questions connected with the subject of arsenic; as several of the points likely to be raised in the course of the trial of cases of alleged poisoning by this mineral are here discussed, and settled on the only true basis—that of cautious induction from well-conceived and carefully executed experiments.

Then follows a paper by Mr. T. W. KING, "*On the Safety-Valve Function of the right Ventricle of the Human Heart; and on the Gradations of this Function in the Circulation of Warm-blooded Animals.*"

The object of this essay is to shew that the auriculo-ventricular valve at the right side of the heart, in man and some other classes of animals, is so constructed, as, upon certain occasions, to perform imperfectly the office of closing the passage between the ventricle and auricle, during systole. On these occasions the tricuspid valve is supposed to act as a *safety-valve*, the explanation of which, in the author's words, is as follows:

"The veins, being more or less influenced by their own number and capacity, by the position of the body, by cold, compression, repletion, and respiration, the blood is brought to or collected in the right ventricle in varying quantities; and on occasions of the most copious influx, the cavity becomes distended; upon which, portions of the tricuspid valve are drawn aside, an aperture of reflux is produced, and the force of the ventricle is diverted from the pulmonary circulation at the moment when the lungs might otherwise be overwhelmed."

In the preceding quotation we have enumerated various powers which propel the blood through the veins to the right side of the heart, and cause fulness of the right ventricle; "but the most persistent and important power of the venous circulation that we have to consider (says Mr. King,) consists in a pulsatile wave derived from or through the capillary system. When the body is at rest in the horizontal position, what are the means by which the veins transmit their contents, from all extreme parts, to the centre of the circulation? To this enquiry I should not hesitate to reply: that the chief force is the ventricular impulse, propagated, through the arterial tubes and the capillaries, into the veins of every part."

Mr. King doubts that any propelling power resides in the capillary vessels; "yet would not absolutely deny to these vessels an operation similar to that of the heart, namely, a passive diastole under the influx

from the arteries, and an active subsequent systole, together with an apparatus tantamount to valves, by which the onward current of the circulation is sustained. . . . In many vascular parts, common size injection passes readily from the veins into the arteries; which is a fact much opposed to the idea of a valvular action in the capillaries. We cannot positively deny to the capillaries a propulsive peristaltic or vermicular action, but yet it seems almost inadmissible." On this subject we may remark that the circulation in many of the simpler animals seems to require a propelling power in the capillaries: for instance, in fishes, from whose single ventricle the bronchial arteries arise, terminating in the bronchial veins, which coalesce to form the aorta. This vessel again becomes continuous, by its capillaries, with the veins of the body, which return the blood to the heart. It can hardly be supposed that the ventricular impulse is continued throughout this double series of vessels, each so minutely divided. The same observation may be applied to the portal circulation of the liver in man, and other animals in which the portal veins pass through that organ. The well known fact, also, that soon after death the arteries are found generally empty, and the veins full, requires some other explanation than is supplied by the propelling power of the left ventricle.

Mr. King believes in the existence of a venous as well as an arterial pulse. By means of a "sphygmometer," consisting of a fine capillary lever with a long index radius, made by drawing out a piece of sealing-wax into a thread about two inches long, and, with a little tallow, fixing this across a vein, on the back of the hand, so that nine-tenths of its length might project on one side of the vein, Mr. King states that the pulsation of the veins becomes very manifest, especially under circumstances of repletion. "The action of this little sphygmometer," he says, "has been witnessed by many; and I scarcely think that any exception can be fairly made to its application, to prove the existence of a pulse or undulating current in the veins. Applied to an artery, it plays freely and quickly: on a vein its movement is very steady, and only visible when neatly adapted; whilst, if applied to any other part, no motion is produced." We have tried this experiment, but with different results from those described by Mr. King. We have not been able to perceive any motion indicating a venous pulse.

The circumstances illustrating accumulation in the right ventricle are stated as follows:

"That the right ventricle readily becomes turgid from obstructions to the pulmonary circulation is well seen in experiments upon the living heart, *in situ*. The right side begins to swell with the first disturbance of the respiration, whether the lungs are kept distended . . . or suffered to collapse; . . . while the reduced state of the left side of the heart clearly shews that the lungs admit but little blood." The accumulation of blood in the right side of the heart and its distention, in the act of lying, the frequent hypertrophy and morbid dilatation of the right ventricle, are adduced as proving that this "cavity is subject to a certain internal expanding force, at least, in a state of disease: a force that cannot be supposed slight, when it is observed to operate effectually against the natural contractile power, and often against a very considerable increase of substance and power in the muscular sac. The dilated and

hypertrophic right ventricle is continually found in death fully distended with blood; and I am inclined to think that this dilated ventricle is diminished in some degree after death, by the tonic contraction common to all muscles. It seems reasonable to infer, that in the natural states of the circulation, some degree of distention is of much more common occurrence."

The circumstance which led the author to the study of the present subject was a post-mortem examination, in which the right ventricle was found morbidly dilated, and which afforded "conclusive evidence that the right ventricle is liable to dilatation, and that the dilatation deranges its valves. The last proposition is thus explained. The cavity is formed by the solid septum of the heart for its inner wall; and by a thinner, more extensive, and yielding layer of muscle for its outer or right wall: whilst each of these walls affords points of attachment to the cords of the valves. The distention of the cavity, operating chiefly upon the weaker paries, carries it outwards, together with the cords and curtains attached to it; and the parts of the valve being drawn from the proper plane of their valvular adjustment, the backward communication into the auricle remains open."

The author's description of the tricuspid valve in the human heart, abbreviated, is as follows. The valve consists of three parts, or curtains: the fixed curtain occupies the left margin of the aperture in apposition with the solid wall, from which arise all the cords affixed to this portion of the valve. A second, or anterior, curtain is attached at the anterior and right edge of the opening, having one free border forwards, and another backwards in the ventricle. The cords of this portion of the valve are inserted, some into the solid, and others into the yielding wall of the ventricle, near its centre; where also is attached a muscular band stretching across the cavity between the two walls, and called by Mr. King "the *moderator band* of distention." The third or right *curtain* is situated on the right side of the aperture posteriorly: and the greater part of its cords are attached, by the intervention of muscular columns, to the yielding wall. "Having concluded," Mr. King says, "that all parts of the valve in connexion with the yielding wall of the ventricle are affected by dilatation, I venture to call them *curtains, cords, and columns* of *distention*. The *anterior* and *right curtains*, then, are parts of distention, together with the cords and fleshy columns attached to the *yielding wall*."

The experiments of the author, in illustration of his views, consist in injecting the ventricles through their respective arterial trunks; a portion of the auricles having been previously removed, in order that the closing of the valves might be seen. He found that, generally, the mitral valve prevented the reflux of the fluid employed, while the tricuspid, closing less perfectly, allowed some to pass. As regarded the right side of the heart, much depended upon the state of the organ. If flaccid and distended by fluid, the valve closed imperfectly: if, on the contrary, the muscles were firm, and over-distention was prevented, the tricuspid valve was found to perform its office well.

There are, we think, two objections to these experiments; first, that the flaccid and easily distended right ventricle of the dead heart is a most inadequate representative of the same part in the living subject: secondly,

that a very small pipe was used for injection, "rather less than the fourth of an inch in diameter, and often still smaller;" whereas, in order to imitate the systole of the living heart, a pipe ought to have been employed equal in diameter to the trunk of the artery, and care should have been taken to imitate the contraction of the ventricle by compressing it gradually with the hand, during the process of injecting. By employing these precautions, we have found the tricuspid valve to perform its office remarkably well, allowance being made for the flaccid state of the papillary muscles, (called by Mr. King "*columns of distention*,") in the dead heart.

There can be no doubt, however, that if the right ventricle be very much distended, either in the dead or in the living body, its valves will be inadequate to close the passage to the auricle, until the distention has been partially got rid of, and that, previously to this, in the living heart, a portion of the blood will be driven back into the auricle.

The second and third parts of this paper are devoted to the examination of the tricuspid valve in mammalia and birds; but we are unable to follow the author into the details of this portion of his essay. He arranges the individuals of each class into series, according to the degree of valvular perfection in the right ventricle; and endeavours, but we think not satisfactorily, to shew in each an adaptation of the anatomical structure to the habits of the creature.

The author's style is, in many respects, faulty; much too prolix, and sometimes obscure; and the *ninety-one* notes, which are to be found in the *seventy-five* pages, of which his paper consists, prove to us either a want of natural connexion in the subjects, or deficient powers of arrangement in the author. We would observe, also, that the terms "*columns, cords, curtains, parts of distention*," strongly savour of that rage for extravagant nomenclature, by which certain anatomical writers of the day are mainly characterized.

This article is followed by "*An Experimental Inquiry respecting the Process of Reparation after Simple Fractures of Bones*," by MR. BRANSBY COOPER.

This gentleman, at the suggestion of Sir Astley Cooper, has undertaken a series of experiments to determine, with accuracy, the phenomena which occur in the reparation of fractured bones. We cannot, until the inquiry is completed, do more than state the plan adopted by Mr. Cooper, and express our hope that the result will prove instructive. A great deal has been already done on the subject; but it must be admitted that all parts of the process of reparation are not yet sufficiently understood.

The thigh-bones of rabbits were those selected by Mr. Cooper for experiment; and the bones were fractured in such a manner as to inflict the least possible injury in the soft parts. The animals were killed at different successive periods, and the dissection was performed in each about one hour after death. A description of the appearances is given, illustrated by well-executed drawings, which afford an instructive view of the several changes which occur. The conclusions which Mr. Cooper, from his enquiries, arrives at are nearly as follows.

The first effect of the fracture is extravasation of blood between the cancelli, and into the surrounding parts: by this, when the blood coagulates, the limb is stiffened, and farther bleeding prevented. There is

little farther change for the first twenty-four hours. On the third day, the limb is rendered still more rigid by the effusion of lymph, the product of inflammation, between the bones and amongst the surrounding muscles. From this period the effusion, which is at first gelatinous, gradually thickens, forming a distinct tumour around the fracture, limiting motion, and preventing the muscles being irritated by irregular ends of the bone. After this, the extravasated blood is absorbed; the last remains of it being that interposed between the fractured ends of the bone. Mr. Key is of opinion that this coagulum becomes organized, and assists in the reparation.

About the sixth day, the effused matter has the appearance, firmness, and elasticity of cartilage, and by its contraction tends to bring the hitherto separated ends of the bones, even though overlapping, parallel and in contact with each other. At the broken part, the periosteum is absorbed; but elsewhere it is thickened, and more loosely connected with the bone than with the textures around. The denuded part of the bone becomes softened and more vascular. The first deposit of bony matter takes place on the surface of the old bone; and from this Mr. Cooper infers, that the osseous system alone is in such cases the source of the bony deposit. He supposes that "the surrounding textures so far assist in the reparation of a fractured bone as to induce approximation, limit motion, and diminish the irritability and contraction of muscle; whilst the osseous system itself deposits the earthy matter essential to hardness, the grand characteristic of bone." Mr. Cooper finds an argument in favour of this view in the fact that bones little organized, such as the cranium or neck of the femur, are badly able to work out their own reparation. From Mr. Cooper's experiments, it appears that, in rabbits, earthy matter is deposited in the cartilage so early as the ninth and sometimes the seventh day. Sections of such cartilage, placed on glass and dried, exhibit at this period the white osseous particles in the form of minute hard specks.

The only two points of novelty which Mr. Cooper's experiments would appear to suggest are,—the power of the callus to replace the deranged bones, and the secretion of the new osseous matter by the vessels of the original bone, exclusively. With respect to the first suggestion, it appears to us that there are other circumstances in connexion with the period of reparation in cases such as those experimented on by Mr. Cooper, which should, as well as the contraction of the callus, be taken into consideration, in accounting for the power of self-adjustment of the fragments; and, at all events, it would be well to have the matter cleared up, lest it be prematurely used as an argument in favour of slovenly treatment, or of the practice of leaving broken limbs without any treatment whatever, to heal the best way they can. As to the second point, it may, as being a mere physiological question, safely lie over for farther consideration. We may observe, however, in passing, that the fact of the secretion of bony matter commencing in the textures immediately next adjoining the original bone, is not now for the first time announced; and that some farther proofs than those adduced by Mr. C. are necessary before we can go the full length with him in believing that the whole mass of new osseous formation is derived exclusively from this source. The farther experiments and observations promised by Mr. Cooper, will, no doubt, set these important matters in a right point of view.

It would have given us sincere pleasure if we could have bestowed on the "*Reports of Obstetric Cases, with Observations*, by DR. ASHWELL," more commendation than we fear it will be in our power to do. We cannot compliment the author greatly either on his style or on the general character of the observations; although it is true that the paper contains practical remarks of value, and some curious cases. It is but justice to the author to state, that many parts of this report are obviously not the composition of Dr. Ashwell himself, but of those gentlemen who, as pupils or clinical clerks, had the management of some of the cases.

We are surprised to find it stated that in "*Inflammatio Oris Cervicisq; Uteri*, cupping on the loins, anodyne injections, mild laxatives, with hyoscyamus, and absolute rest in the recumbent posture, comprised the whole of the treatment." Was there no trial of mercury, or of leeches applied directly to the part, or the nitrate of silver, or the warm bath?

The cases of "*irritable uterus*" were treated with "the hip-bath, hyoscyamus and camphor, assisted by the employment of anodyne injections and suppositories, . . . while tonics, as the calumba, cascarilla, and quinine, were administered, to maintain the powers of the constitution." In these cases, also, we think the remedies above mentioned might have been useful, as also guaiacum and iron, which latter especially has frequently, in our hands, appeared to be the agent to which the patient was ultimately indebted for her complete cure. It would, moreover, have been satisfactory to have been told how many patients affected with these two complaints were cured by the treatment adopted.

All the cases of Leucorrhœa were treated with astringents and tonics: but no examination is reported to have been made of the state of the uterus and other parts concerned: are we to conclude that the treatment was adopted in reference to the mere discharge, without any thing being known of the condition of the parts from which it proceeded?

In Menorrhagia the ergot of rye is stated to have been of great service, and was employed, both internally and *externally*, "in the form of injections," (p. 206.) We do not understand what is meant by the latter expression.

We have in some of our preceding numbers had occasion to notice more than once the subject of Polypus of the Uterus, and have consequently anticipated the discussion of some points in which we differ from Dr. Ashwell. There are however some of Dr. A.'s views of this disease, both pathological and practical, which seem to call for further notice in this place. He details four cases of polypus successfully operated on by the ligature. Dr. A. excludes altogether the use of the knife in such cases; but we cannot admit, as the readers of the articles referred to are aware, that he entertains this preference "in common with English practitioners." In common with many, unquestionably, and some of these of great name, his preference is shared. Still, as formerly stated, several practitioners in this country decidedly prefer the use of the knife in many cases of polypus; and we think this preference particularly justified where the tumour is of the hard fibrous kind, the pedicle small, or of moderate size, or where the polypus protrudes, or nearly so, from the vagina, so that its stalk can be brought into view. In these cases, we consider that the knife is infinitely to be preferred; and as to the occurrence of so much hæmorrhage as might require the plugging of the vagina, surely the

inconvenience of that simple and effectual proceeding is productive of much less annoyance and danger to the patient than the repeated tightenings of the ligature, the foul putrid discharges, the presence of the instrument in the vagina for so many days, and the risk of dangerous irritative fever.

We would say decidedly that a much greater number of accidents have, on the whole, followed the use of the ligature than that of the knife; the latter may be, and often is, difficult to use, and there is the risk of hæmorrhage; but where a ligature is applied and a week or ten days elapse before the pedicle is cut through, it is by no means the safe operation that is generally supposed: that it does most frequently happily succeed, we know by repeated experience, but we have also seen the contrary too often, to allow us to join in the exclusive commendation of this mode of proceeding.

It is asserted by many as a reason for using the ligature, that its application *always* puts an end to the hæmorrhages and is not productive of any pain. Now, neither of these statements can be admitted as universally true; the hæmorrhages are not always arrested by the application of the ligature, although in the great majority of instances they are so; and there is one kind of polypus which always gives pain when its pedicle is constricted, namely, that variety in which the proper tissue of the uterus is continued into the stalk of the tumour, or, as it sometimes is, into its body.* In a case tied by Dr. M'Farlane at Glasgow, on the application of the ligature the patient "complained immediately of acute pain, which in a few minutes became so severe that she could hardly be persuaded to submit to its continuance," and subsequent tightenings of the ligature reproduced the pain.†

In case 4, p. 238, Dr. Ashwell judiciously availed himself and with success of the powers of the ergot to cause the expulsion of the polypus from the cavity of the uterus, and to bring it within reach of his ligature; we think he might have done the same with advantage in the preceding case, instead of attempting to tie the polypus within the uterine cavity, by which he incurred an unpleasant failure, and caused the patient a hæmorrhage which reduced her to the brink of the grave. It may be mentioned here, that occasionally the administration of ergot in such cases has not only effected the descent of the polypus, but has caused its strangulation and removal. This we ourselves have witnessed, and Dr. M'Farlane has recorded a very interesting case‡ in which the same fortunate result followed the use of this remedy.

Dr. Ashwell's remarks (p. 239,) on the structure of polypi, shew, in our opinion, a deficient acquaintance with the nicer details of the subject, and of the investigations of others both here and on the continent. He maintains that the hæmorrhage comes from the polypus and not from the uterus: 1st, because, in his own cases, it ceased immediately on the tightening of the ligature; 2dly, because Mr. Langstaff related a case where a patient lost her life from the repeated bleedings of an undiscovered uterine polypus; 3dly, because a polypus examined by Dr. A. and Mr.

* See Cruveilhier. Anat. Pathol. liv. xi. pl. 6, fig. 1, 2, 3.

† Vide an excellent article on this subject by Dr. M'Farlane in Glasgow Med. Journ., vol. I. p. 424.

‡ Ibid. p. 414.

Sibson was proved to have vessels in it: and he moreover considers these facts as tending to prove that an uterine polypus cannot be the same as a fibrous tumour of the uterus.

Now, surely Dr. Ashwell knows that a fibrous tumour in the substance of the uterus is constantly productive of profuse and repeated hæmorrhages, and yet, as he himself says, "it is rare to meet with a hard tumour that bleeds," for this cogent reason, that the hard or fibrous tumour of the uterus has no vessels in it to yield blood.

We should think that Dr. A. must have seen polypi removed whose surface was smooth and perfectly unbroken throughout, and which had yet by their presence caused the system to be fearfully drained of blood; and he must be aware that the hard white polypus has not a single blood-vessel in its structure. Twice recently we have seen the substance of polypi of this description divided by the hook tearing through it, in the attempt to draw them down, and not a single drop of blood flowed from them; nor could a trace of a vessel be discovered in either of them, by the most careful inspection after their removal. Yet, in both these instances, the patients had been the subjects of profuse hæmorrhages.

Dr. A. wishes to deny the identity of uterine polypi with the hard fibrous tumours of the uterus, which, he says, has lately been maintained by some eminent pathologists. Between these, however, he is "disposed to believe that there are, occasionally, points of similarity, especially between large, old, and condensed polypi and these tumours; but it is erroneous to view this similarity as at all complete, or universally existing."

We are not aware that any eminent pathologists have maintained, as a general rule, the identity of uterine polypus and the fibrous tumour of the uterus: such a view cannot be entertained for a moment; but Dr. Ashwell's opinion, that they are always dissimilar, is equally untenable. The white membranous lines he considers as peculiarly distinctive of the fibrous tumour of the uterus, and as not to be found in the polypus. But Cruveilhier (liv. 24, pl. i.) proves to us that a polypus may possess these as perfectly as an uterine tumour; and we think there is hardly a large museum in which the same fact may not be verified: we ourselves have seen it repeatedly; and, in the two instances above noticed, of polypi without blood-vessels, the structure was completely that of the uterine fibrous tumour.

Among the peculiarities noticed by Dr. Ashwell as contradistinguishing the two diseases, he mentions the possession of *sensibility* by the hard tumour, and the want of it in the polypus; and the *vascularity* of the latter and non-vascularity of the former. But we have already shown that a polypus may be as destitute of vessels as the other variety of tumour. We are surprised to find Dr. A. asserting that "the hard tumour most frequently grows externally, *seldom* encroaching on the cavity of the uterus." We thought its doing so a matter of such common observation as to be familiar to every one; and so it has been spoken of by Cruveilhier, Dupuytren, and many others. But what need of dwelling on particular points, when we have good reason to believe, with the distinguished authorities just named, that the fibrous tumour of the uterus not unfrequently becomes the uterine polypus, simply by descent and the consequent formation of a stalk. "There are," says Cruveilhier in his remarks on pl. i. liv. xxiv., "hard polypi, which consist of an

hypertrophy of the tissue of the uterus: there are others which consist of fibrous tumours developed underneath the mucous membrane of the uterus or close to it, which grow towards the uterine cavity, sometimes remaining enclosed in that cavity, and at other times passing through the os uteri and descending into the vagina." And Dupuytren uses almost the same words when speaking of the fibrous tumours of the uterus. "These tumours (he says,) are often situated at the internal surface of the uterus, and are either merely projecting into the uterine cavity, or are completely pediculated, and these are the most common, constituting the real fibro-cellular polypi, &c."*

Of the six cases of polypi reported by Dr. Ashwell, three were in women who had had children, one in a woman long married but never pregnant, and two in single women: it is not stated whether these latter had cohabited with the other sex or not. This proportion, though on a very small scale, is satisfactory as shewing the fallacy of the commonly entertained notion that a much greater proportion of old maids are attacked with these complaints. On this subject Dupuytren has given us a table on a much more extended scale, which we subjoin.

Of 58 women affected with polypus

54 were married, or being single had cohabited.

4 only were unmarried and supposed not to have had sexual intercourse.

58

Of 51 women, there were

39 married, and with from 1 to 10 children, } 42.

3 unmarried, but with children,

8 married, but without any family,

1 unmarried, who had cohabited but had not had any } 9.
child

51

The proportion of instrumental cases given by Dr. A. is small, and therefore bespeaks laudable practice: in 627 deliveries the forceps was used twice and the vectis twice; that is, for both, once in 156½: the crotchet only once in the 627. Altogether instruments were resorted to only five times, or once in 125½. The mortality of the children born under presentations of the nates or feet is enormous, being no less than nine out of eleven. For this, however, it would be quite unfair to impute blame to Dr. A. as these cases were principally under the care of pupils. Of the 627 women delivered, six are reported to have died, or one in 104½. This appears to us fortunate practice, considering the class of patients attended.

Of 22 cases of carcinoma uteri there occurred between the age of

30 and 40 — 8 cases.

40 " 50 — 6 "

50 " 60 — 6 "

60 " 70 — 2 "

All these women we are informed were married, and, except two, had been mothers; seven were of light complexion and fifteen dark.

Eleven cases of ovarian disease and one of ascites are detailed, which do not afford much ground for comment. The author's remarks on this group of cases are judicious, and coincide with the results of our own experience.

"The statistics of these cases are instructive. In nine out of the twelve patients, there was deranged menstruation. Eight were or had been married; four were single. Two had not been mothers; and the remaining six had produced only twenty-two children; fifteen of the number having been borne by two women; facts not altogether unimportant, where the ovaries are structurally diseased. The progress of ovarian dropsy is extremely uncertain, and the effect of treatment is not less so. Occasionally, the disease advances by almost imperceptible degrees, and, for years, is scarcely at all regarded: suddenly, however, and without any appreciable cause, the malady not unfrequently displays great morbid activity, and paracentesis is performed, to obtain transient and slight relief. All remedies, excepting the extirpation of the diseased viscus, participate in this general inefficiency; and we cannot but regret that the curative means are so few and so feeble. Negative treatment, or, in other words, an attention to the general health, avoiding, as much as possible, constitutional excitement and ovarian irritation, promise most favorably for the patient. The cases adduced, and many others, sufficiently attest the powerlessness of medicine; and as to the radical cure, it is too truly hazardous, to be more than very rarely even thought of. It is true, that many patients pass through a tolerably long and comfortable life with a large ovarian dropsy; and more might enjoy this immunity from suffering, if marriage and parturition were avoided, and if they could be induced rigidly to practise self-denial and abstinence." (P. 226.)

A case of hard tumour of the uterus is related, which acquired a great size and weight (26lbs.), and in which iodine appears to have been of service. In the efficacy of this powerful remedy Dr. A. expresses, and we think justly, his unabated confidence in the treatment of uterine and ovarian tumours.

At page 242 a case is reported by Mr. Joseph Ridge, in which, for the cure of a "purulent discharge from the lining membrane of the uterus," in a girl of nineteen, that organ was twice injected with warm water by Dr. Ashwell: by this, violent and of course dangerous inflammation was induced; but the original disease disappeared with the cure of the factitious inflammation. We must, however, be permitted to doubt both the accuracy of the diagnosis and the propriety of the practice in this case: and it is but doing justice to Dr. A. to state that in regard to the latter point he is himself doubtful. The remarks on this and several other cases do credit to his candour and impartiality.

We have next, an interesting case of adhesion between the walls of the vagina, causing retention of the catamenia, in which peritonitis and death followed a second operation for the division of the adherent surfaces. Dissection shewed that the accumulation had distended the uterine cavity; a fact worth noticing, because some persons doubt that such an effect is produced by retained menses: although we ourselves have seen the uterus acquire, under such circumstances, a size equal to that of the sixth month of pregnancy.

A case of "malignant disease of the external genitals complicated with pregnancy" is also reported by Mr. Ridge. After the completion of the seventh month Dr. Ashwell induced premature labour by puncturing the membranes; to which proceeding, under the circumstances, we do

not object, but against the way in which the case was subsequently managed, we must strongly protest.

"In nineteen hours afterwards, labour-pains commenced; and during this interval her local sufferings had been much relieved, and she had enjoyed several hours' sleep. Every advantage was given, by restraining the rapid advancement of the foetal head, for a gradual dilatation of the external parts; but as labour progressed, the labia became everted, and some dark grumous blood was discharged from the left. As the head was urged towards the outlet, it became evident that the latter would not allow its exit, without tearing away a considerable portion of the diseased structure, and giving rise to such a hæmorrhage as the enfeebled state of the patient's powers would ill sustain. At this time, Mr. Lever came to my assistance; and finding the head unusually firm and large, and that no pulsation was perceptible in the fontanelles, he determined to perforate the cranium. The greater portion of the brain escaped, with much blood; and the uterine efforts quickly expelled the collapsed head, the shoulders and nates gently following it. A slight laceration of the fourchette occurred, notwithstanding the firm support afforded to the perinæum, but it did not extend to the softer, or, rather, less scirrhus parts. The placenta soon followed. The uterus firmly contracted, and, excepting a slight oozing from the morbid growth, scarcely any blood was lost. The child was well formed, and judged to be a little beyond the seventh month." (P. 249.)

It would appear from this, that lest the woman, whose condition was already hopeless, might possibly sustain some injury, or lose some blood, and because "no pulsation was perceptible in the fontanelles," a living child, arrived at the period of viability, was destroyed. It will not, we presume, be pretended that the absence of pulsation at the fontanelles is any proof whatever of the extinction of foetal life. It is but justice to Dr. A. to state that he does not appear to have had any hand in this proceeding; at least, he is not mentioned as having been present, but he notices it without censure in the *Remarks* appended to the case.

The next case, also one of placental presentation, reported by Mr. Jackson, seems to us a striking example of injudicious practice. The patient seems to have been left from the 18th December till the 22d January without any examination being made to ascertain her real condition, although she had, in the interval, profuse hæmorrhages and grinding pains. This was more especially the case on the 14th January, when dilute sulphuric acid with infusion of roses, opium, and the application of cloths dipped in cold vinegar and water to the lower part of the abdomen, were had recourse to.

"This was attended with success, as far as regarded the bleeding; though the pains continued at intervals till Friday night, the 22d, when suddenly there was another discharge of blood: her spirits became depressed; her pulse quick, and small; severe pains occurring every twenty minutes, accompanied with the expulsion of clots of blood: the liquor amnii was also trickling away. Availing myself of a pain, I examined, and found a small portion of placenta projecting over the posterior edge of the os uteri, which was yielding. I now sent for Mr. Lever. After his arrival, there was no further uterine effort, or bleeding; the pulse was 120, small, and the patient excessively low: on examination, he found the presentation, as stated—the os dilatable, and the head within reach. He ordered tinct. opii m. xxv., and enjoined quiet. During the two following days, the liquor amnii continued to escape: she was more comfortable; took her medicine; and, an anodyne being exhibited at night, she slept tolerably well. On Monday morning, although no subsequent hæmorrhage had occurred, there was sudden dyspnœa, with jactitation of the upper extremities; pulse quick, and small; no uterine effort; and every indication for a speedy emptying of the uterus. I ordered brandy, slightly diluted with water, to be administered to her,

by means of a tea-spoon, every five minutes; and went for Mr. Lever, who immediately delivered her of a still-born child, by turning; Dr. Ashwell being present." (P. 257.)

It seems unaccountable that when Mr. Lever was called in on Friday night, nothing was done except giving twenty-five drops of tincture of opium, and enjoining rest; and that the woman was left to struggle until Monday morning without even the precaution of plugging the vagina. Then when she is in articulo mortis, and not till then, it is discovered that there is "every indication for a speedy emptying of the uterus," from which a still-born child is extracted. Transfusion was had recourse to, but ineffectually. Dr. Ashwell does not appear to have been informed of what was going on till it was too late, but, in his remarks he tells us that "this case is instructive as shewing that in cases of exhaustion there is something wanted to revive and re-establish the living principle, which the supply of blood cannot furnish." We think that the case is very instructive in another point of view, as shewing, that inert trifling, and procrastination in cases of such imminent danger, as are those of placental presentation, can lead only to the most disastrous results.

The last case contained in the report is one of pregnancy with imperforate uterus, drawn up by Mr. Tweedie. The details are carefully given, and under the circumstances we believe the incision made into the cervix was justifiable; though we think it not impossible that had a free venesection been premised and some further time given, an os uteri might have been found. Dr. Dewees mentions a case in which displacement of the os uteri by obliquity was mistaken for its absence; delivery was effected by dividing the cervix, as in Dr. A.'s case; and the woman was afterwards delivered of several children per vias naturales.* Dr. Ashwell is mistaken in supposing that the description of such an occurrence is original with him: Nägele has described a cause of dystocia in agglutination of the external orifice of the os uteri arising between the time of conception and labour;† and complete occlusion of the os uteri has also been recently met with, demanding the free use of the bistoury before the labour could advance,—the patient being twenty-three years of age, and the complete closure of the os uteri ascertained by ocular inspection as well as by the touch.‡

The only communication of Dr. HODGKIN in this Number is the "*Description of a remarkable Specimen of Urinary Calculus; to which is added, some Remarks on the Structure and Form of Urinary Calculi.*"

The specimens (two in number,) described by Dr. Hodgkin were taken from the bladder of a boy, two years of age. They were about the size of a pigeon's egg, of different shapes and of a whitish colour. The surface was soft, as if covered with a fleshy layer, which prevented the detection of the calculus by the sound during life. The texture composing the surface was not unlike that of some blighted, acephalocyst membranes. On making a section, it was discovered that the calculus was made up of several alternating layers; one set soft, like that on the out-

* Compend. Midwifery, 5th Edit. p. 126.

† Arch. Gen. de Med., Oct. 1835.

‡ Entbindung bei Vollkommen verwichenen Muttermunde. Siebold's Journal für Geburtshilfe, 1835.

side; the others of an opaque, white substance, having a fragile earthy texture; but, although the earthy layers were so brittle as to be crushed by the act of making the section, the fragments were so effectually retained in their relative situations by the tenacity of the membranous layers, that the two portions into which the calculus was divided were able to retain their form and cohesion.

From an examination of this calculus, Dr. H. is disposed to offer an explanation of the nature of a specimen in Guy's Hospital Museum, not hitherto understood; the characters and history of which are somewhat of the same kind as that described. He supposes that the two specimens mutually explain each other. The patient, the subject of the Guy's calculus, was a lad who had been in the habit of passing a milky fluid, slightly tinged with blood, and taking, by coagulation, the form of the vessel in which it stood. Dr. Hodgkin is inclined to believe that the patient who produced the specimen of calculus described by him, as above, must at times, in consequence of the derangement of the kidneys or bladder, have produced urine having somewhat the character which had been constant in the lad who furnished the specimen alluded to; and that, by an alternation of such coagula with the deposition of phosphates, the peculiarity in question was produced. The explanation is a most rational one; and it would have been satisfactory if Dr. Hodgkin could have verified, by observation, the resemblance of the condition of the urine in the two cases, the supposititious existence of which has led him to such conclusion.

Dr. H. compares the irregularities and fractures observable in some of the layers of such calculi to the interruptions sometimes seen in the sections of a stratified country; irregularities which he considers to have been produced by the successive and alternate deposits of hard and soft materials, the result of differences in the condition of the urine at different times.

In following up this principle, Dr. Hodgkin offers some interesting remarks respecting the varieties observable in the form and composition of calculi in general, and gives a plate illustrative of his views, representing fourteen different varieties of calculi.

The last paper in the collection, though by no means the least considerable, is one by Dr. BRIGHT, which well supports his long-established reputation for sound pathological views and talent for observing the phenomena of disease, and graphically detailing them. It is entitled "*Cases and Observations illustrative of the Diagnosis where Tumours are situated at the Basis of the Brain; or where other Parts of the Brain and Spinal Cord suffer Lesion from Disease.*"

Of the nine cases given, the first two are perhaps the most interesting. There is a strong resemblance between them, and they mutually throw light on each other. In both, a tumour existed just beneath the tentorium, attached to the petrous portion of the temporal bone, and pressing aside the pons Varolii. The subject of the first case was a middle-aged officer, who, in the autumn of 1829, when on foreign service, began to suffer from a periodic pain in the situation of the left superorbital notch, recurring daily about dinner-time, and ceasing as regularly before he had half-finished his meal. At this time he met with a very severe accident,

the nature of which is not stated further than that he was taken up, after it, stunned and senseless. Though immediately bled, his recollection appeared for a day or two after very much impaired, and he never completely regained his former state of health. He made frequent complaints of pains in the head, and of some weakness in the right leg. A few weeks afterwards he had an attack of bilious vomiting, after which the pain in the head and over the eye became worse and more frequent, and was accompanied by an occasional loss of sight, coming over him like a cloud, and lasting a few minutes. Shortly after this, the intermittent pain over the left eye was completely removed, in a single day, by taking two or three doses of sulphate of quinine, in rapid succession, two or three hours before the usual period of attack; and it never returned:—a new and convincing proof, if any were wanting, of the possibility of intermitting symptoms depending on a local disorganization, and that they are occasionally amenable, even when they have such a source, to antiperiodic medicines.

About half a year afterwards, the patient had another attack of bilious vomiting, soon after which he discovered one day that he had completely lost the sight of the left eye; that of the right also became very imperfect, whilst the weakness of the right leg increased, and the left began to lose power. He had lost the hearing of the left ear, many years before, by the shock of a gun in firing; that of the right was tolerably perfect. He complained much of pain darting through his head, which was relieved by cupping, blistering, and tartar-emetic ointment.

It was in November, 1831, that Dr. B. saw this gentleman for the first time. He appeared perfectly unconscious of surrounding objects; obviously rather from the impairment of the external senses, than from any notable defect of mental power; for “when, after much trouble, by writing words on his hand and by calling in his ear, and by other means, he was led to comprehend, he answered distinctly and without hesitation, but in the high-raised and ill-modulated voice which is usually observed in deaf people.” He was able to stand; but, when he attempted to walk, even with support, it was with a short, feeble, tottering step. He had no incontinence of urine, nor had he as yet passed his *fæces* involuntarily. His sleep was tranquil, and he was not more drowsy than might be expected in a person deprived of his sight and hearing. His appetite was good. He had experienced, about a week before, a fit, in which he had become insensible for a time, and his countenance suffused, but without convulsion. “There was no room to doubt that organic mischief was established within the skull: all that was recommended was medicine to regulate the action of the bowels, and a few grains of the subcarbonate of ammonia, with compound infusion of gentian; his diet to be very plain, and no wine.”

When Dr. B. saw him again, about three weeks after, a slight amendment seemed to have taken place; as he could see a little better, and walk, with support, three-quarters of a mile. He sometimes spoke of ‘a peculiar sensation in his head, attended with a sound as if grease had been thrown into the fire, making a whizzing noise, and then dying away, whilst at the same time a flash of light passed over his eyes.’ The use of the arsenical solution was suggested, with a succession of blisters behind the ears and to the nape of the neck; and a seton was shortly afterwards

introduced in this latter situation. His symptoms, however, soon began to grow gradually worse, and he sank in about a year after Dr. B.'s first visit, who had rarely seen him in the interim; the paralysis and drowsiness having slowly augmented, and the mental faculties become much weakened. The sense of taste seems to have been entirely lost, "so that for some months he had not seemed to prefer one article of food to another, and he supped the most nauseous medicines with the same apparent unconcern as he did wine or any pleasant beverage. Towards the conclusion, the urine and fæces were passed unconsciously; there were frequent and profuse perspirations, and extensive sloughing over the sacrum.

On dissection, the glandulæ pacchioni were found very much enlarged, and penetrating to the external table of the skull; the arachnoid in their neighbourhood being opaque, and adherent to the dura mater. The ventricles were distended by a serous fluid, of which about four ounces were collected. The septum lucidum was much thicker and firmer than usual, and several small vesicles adhered to the choroid plexus.

"In attempting to remove the brain from the basis of the skull, it was found that the anterior portion of the cerebellum on the left side degenerated into a tumour, and adhered so firmly that it could not be detached without a scalpel, or employing considerable force, from the petrous portion of the temporal bone. The structure of this tumour was chiefly hard and unyielding, but in some parts softer; and the *nervus trigeminus*, or fifth nerve, was seen passing over it flattened and broad: nor did the tumour simply adhere, but the bone had become carious and pervaded by it, so that a softened cavity occupied a large portion of the petrous ridge extending towards the *sella turcica*."

The second case presents several points of coincidence with that just detailed, both in the symptoms and in respect to the fungoid growth found attached to the petrous portion of the temporal bone, appearing to grow from its cancellated structure, and pushing aside the tuber annulare and the left hemisphere of the cerebellum, compressing the medulla oblongata and pushing the fifth nerve upwards. "In both the disease has been marked by its gradual progress; has first showed itself by affections of the senses, and then slowly produced paralysis of motion or sensation in various parts, affecting the intellect little till an advanced period of the disease, and probably not till it had led to extensive serous effusion into the ventricle." In both the left ear lost its sensibility, not much less than twenty years before death; in one, from the concussion of a cannon; in the other, after a severe wound of the face from the bursting of a gun, by which the cheek-bone was much injured, and the temporal bone had probably suffered from the concussion.

The organic mischief in the neighbourhood of the left ear sufficiently accounts for the deafness on this side, whilst that of the opposite may be ascribed to the pressure communicated through the pons Varolii. The impairment of taste (a symptom which is the more interesting from the circumstance of its being rarely mentioned in such cases,) is ascribed to pressure made by the tumour on the fifth pair of nerves. The impaired functions of the senses, and especially of sight, preceded by a considerable time any remarkable loss of power in the voluntary muscles, or any diminution of the common sensibility. Something analogous to fits of congestive apoplexy occurred in both cases, as the irritation and embar-

assment of the brain gradually proceeded. The serous effusion, and consequent changes in the ventricles, had doubtless a considerable share in impairing the muscular power, and inducing the feebleness and oppression of the intellect observed in the later stages.

Several cases are recorded illustrative of the effects of lesions in different portions of the spinal marrow. One of a female is alluded to, who had paralysis of the glosso-pharyngeal and laryngeal nerves, (and of them alone,) so that she could with great difficulty swallow, and was quite speechless; and the case of a man is also cursorily mentioned, who had evident disease in the superior cervical vertebræ, in consequence of which he lost the power of articulating except in a whisper, while at the same time the lower extremities were paralysed. Though he recovered in a great degree the use of his limbs under the use of setons, he left the hospital with the same defect of voice still persisting.—Two cases of paralysis, connected with disease of the atlas and dentata, follow. In such instances, if, as often happens, pressure be made by the processus dentatus upon the upper part of the anterior spinal column, “the power of voluntary motion is destroyed throughout the whole trunk and limbs; while the nerves on which the particular senses depend,—those from which the motions of the muscles of the face, the tongue, the larynx, and the neighbouring parts, are derived,—and the nerves of sensation throughout the body all remain uninjured, and consequently the respective functions of the parts unimpaired.”—The great object of treatment in these cases is, by perfect rest and counter-irritation, to favour the formation of ankylosis. A very good case (Samuel Elom’s,) is given, in which, in the course of eighteen months, this happy result seemed to have been almost attained, when the patient, by an act of imprudence, revived the morbid process, and speedily fell a sacrifice to it.

Rheumatism would appear to be a very frequent cause of these affections.

Another case is reported, in which there was diminished sensibility and power of motion in the lower extremities, and yet no pain on pressure could for a long time after be discovered in any portion of the spine, nor any irregularity in the spinous processes; and, as a slight vertigo co-existed along with exfoliation of a portion of the frontal bone, the nature of the lesion was long doubtful. Sloughs occurred on the nates and hips; and though at first they healed rapidly, on diminishing the pressure upon them by means of the water-bed, yet, as the general health became subsequently still farther deranged, they recurred, and the patient sunk under their irritation.

In the case marked No. 7, along with hemiplegia of the right side, there was difficulty, not only of articulation, but also of connecting words justly with their corresponding ideas; and, on death, extensive disorganization of the right corpus striatum was the principal lesion found; which was in accordance with Dr. B.’s previous belief, namely, that derangements of the articulation are connected with lesions of this part of the brain. In case 8 likewise there existed a similar difficulty in connecting words correctly with the respective ideas which they properly represent. The replies to questions were consequently in many instances very ludicrous. This patient recovered. The 9th and last case is that of a gentleman, of fifty-eight years of age and gouty habit, who fell to

the ground in a fit of vertigo, and experienced a numbness of the whole of his left side for several weeks after. There was a very peculiar morbid sensation in the fingers, so that every thing felt as if it were gelatinous or unctuous: when he touched his bedclothes, they felt as if arrow root had been spilt on them. This delusive feeling came on about two months after the commencement of his illness. "It lasted for a short period, not many hours, and was succeeded by several optical delusions: he fancied he saw persons in the room, and that, as he walked the floor, he had to step over gates, and stiles, and railings, and his mode of stepping corresponded with this conviction; at the same time he was capable of transacting business, so that the illusion appeared most probably to arise from some morbid impression on the optic nerve, and not from a mental process." Occasional impairment of hearing and sight were amongst his symptoms. Having been cut off some months afterwards by chronic peritonitis, a cell, about half an inch long, was detected in the right optic thalamus, and the surrounding portion was found to be in an unnaturally soft condition.

These cases we regard as of the greatest importance in relation to pathology, physiology, and phrenology. Every additional communication of Dr. Bright confirms our previous opinions, that medical science, largely indebted as it is already to him, is destined to receive still greater benefits at his hands. He conducts his enquiries in the true spirit of the inductive philosophy.

ART. IV.

Ueber den Zustand der Heilkunde und ueber die Volkskrankheiten in der Europäischen und Asiatischen Türkei. Ein Beitrag, &c. Von FRIEDR. WILHELM OPPENHEIM, Doctor der Medicin und Chirurgie, &c.—Hamburg, 1833. 8vo. pp. 143.

An Essay on the State of Medicine, and on the prevailing Diseases of European and Asiatic Turkey. By F. W. OPPENHEIM, M.D.—Hamburg, 1833.

AFTER we had transmitted to a friend at Constantinople a series of queries respecting the present state of medicine in Turkey, with a view to obtaining a Report on that subject, for insertion in the Fifth Part of some of our subsequent Numbers, we had the pleasure of receiving from the author the very valuable and interesting work now before us, of the existence of which we were previously ignorant, and which more than supplies the information we had sought from our own correspondent. In the present article, we shall endeavour to lay before our readers a comprehensive but brief analysis of the more important matters contained in Dr. Oppenheim's little work, adopting our own arrangement, and breaking the thread of the narrative with but few observations or critical remarks of our own. We must, however, commence by stating our conviction, founded on a careful perusal of the book, that, exclusively of its medical details, it contains more new and accurate information respecting the character, manners, and customs of the Turks, than any of the numerous and large works—we had almost said, than all of these—which

have been published during the last twenty years. This arises from the peculiar advantages enjoyed by Dr. Oppenheim derived from his long stay in this country, and the unequalled opportunities which his particular position afforded him of seeing the natives more closely and more at home, than can be done by the mere traveller. It would appear that Dr. Oppenheim entered Turkey during the last Russian campaign, in the medical department of the invading army, and that, after the peace, he passed into the Turkish service, under the auspices of the Grand Vizier.

"A residence of almost three years in the different provinces of Turkey, both in Europe and Asia, has given me full insight into the manners and customs of the people, as well as made me acquainted with the state of medicine among them; and this chiefly because I did not spend the greater part of this time in the capital, as is the case with most physicians who have given us any accounts of these countries, but travelled through the various provinces in my capacity of an army medical officer. And further, in the latter part of my stay, through the particular introduction of the Grand Vizier and other Turks of eminence, I had access to the Turks themselves; a thing so difficultly obtained by a foreigner: after I had made myself master of the customs and the language, and had adopted the oriental dress, I was treated, not as a Frank, but as a true believer, and received freely into their families." (*Preface*, p. vi.)

The knowledge of medicine, in all its branches and in all its foundations, is at the lowest ebb among the Turks; so low is it, that it requires some effort to comprehend how it can happen that a people, so long possessing a fixed government and civil institutions, and in constant relation with polished nations, could remain to this day almost as destitute of medical and of all kinds of scientific knowledge as the savages in the South Sea islands. Yet such is nearly the case. The nature of our work will not permit us to enter upon the consideration of the causes of this singular result, but we may state that it mainly flows from the nature of the Mahomedan religion, and the modes of thinking and acting to which it has given rise. It is sufficiently apparent from Dr. Oppenheim's work that, although some slight advances have certainly been made, and are making, towards a more rational system of medicine, through the residence of foreign physicians, now daily more countenanced by the government, still it is impossible that medicine can flourish while Islamism, as at present, not merely the national faith, but the deeply-cherished and enthusiastic love of the whole nation. It is a melancholy truth that the whole mass of the Turkish people are, in respect of the cultivation of the intellect, still barbarians; and it is more melancholy still to know—and no reader of the work before us can fail to know,—that the state of moral cultivation is, if possible, even lower than that of the intellectual. Animal gratification of the grossest kind is the governing motive of the whole male population; and, perhaps, the most striking illustration that could be adduced, at once, of the degradation of morals and of medicine in this unhappy country, is the fact, demonstrated by every page of the work of Dr. Oppenheim, that the most prized, if not the principal, part of the miserable duties of the native doctors, is to minister, by fancied storatives and corroborants, to the pallid appetites and jaded powers of an exhausted or superannuated sensuality. It is impossible to contemplate the dreadful consequences flowing directly and unquestionably from the doctrines of Islamism, without admitting that Christianity, in its most corrupted and degraded form, has claims to the respect and patronage of

the philosopher and philanthropist, whether a believer or an infidel, of an immeasurably superior kind to those which can be preferred by the religion of Mahomet, even in its purest and most perfect condition: and no human being, with an intellect above a savage, can fail to express his satisfaction, in perusing the degrading details here presented to him, that his lot has been cast in a Christian land, amid the blessings of civilization and the institutions of a free state. It remains to be seen to what extent the example of the present ruler of Egypt will operate upon the Turkish empire at large. It is certainly a most important step gained that, under his authority, both the principles and practice of European medicine and surgery have become triumphant, not only over the ignorance, but over the prejudices and religious scruples of the people. It is also a most fortunate circumstance, that in the present head of the medical institutions of Egypt, Clot-Bey, great knowledge, great skill, and great courage are combined. In spite of one of the most inveterate of the popular prejudices, the inviolability of the dead, anatomical dissections are now publicly practised in Egypt, under the superintendence of this distinguished man, while the plague itself is losing half its terrors, and probably will speedily abate its ravages, under the influence of his enlightened courage.

The practitioners of medicine in Turkey are of various kinds and orders,—Turks, Greeks, Jews, and Franks or Europeans. The native, or Turkish doctors, are to a man ignorant of the first principles of medical science, and the slaves of the most blind empiricism or grossest superstition. Anatomy is totally unknown and unpractised, and must be so while the existing religion is strictly maintained. To the Turks, however regardless of life, every dead body is sacred. The opening of dead bodies is expressly forbid by the Koran, “even should the dead person have swallowed the most costly pearl, which did not belong to him.” There is admitted no exception to this, except in the case of a pregnant woman dying while the child gives signs of life; in which case the Cæsarean operation is permitted. The present Sultan, it is true, has had published, by special command, a large work on anatomy and medicine, containing numerous anatomical plates; but we are told by Dr. Oppenheim, that even this imperfect substitute for dissections is not known to a single practitioner in the empire, except the immediate pupils of the school recently established in Constantinople. It is somewhat singular that, although the pulse is regarded by the Turks as capable of indicating everything necessary in diagnosis and practice, they are altogether ignorant of the circulation of the blood. Divination is still one of the principal agents in the medical practice of Turkey; the influence of the stars, necromancy, talismans, amulets, and cabalistic figures, are the objects of their undoubting faith. Sometimes disease is regarded as an evil spirit, and is attempted to be conjured away; at other times it is considered as an immediate judgment from God, whose wrath is to be appeased by long prayers and the counting of the rosary: at one time a passage from the Koran is written on paper, pounded into a bolus and swallowed, or the words are written on a board, washed off, and the inky water given as a draught. Amulets, both as prophylactics and means of cure, are in the highest estimation, and indeed by all classes of Orientals, as well Christians and Jews as Turks. They mostly consist of triangular pieces of paper,

containing written passages from the Koran or Bible, sewed into some part of the dress. These are deemed also very important in protecting the wearers from the *evil eye*; a superstition of universal belief in Turkey. The doctors religiously observe also what they term their white and black, lucky and unlucky days: on the last, no course of treatment is undertaken, no surgical operation performed.

Next in number to the native doctors are the Greek practitioners, who may be divided into three classes,—those who have studied medicine in Europe, generally in Italy, for a short time; those who have inherited their knowledge from their fathers; and, lastly, those who have been servants, assistants, or apothecaries for a certain time, with some so-called doctor. Of these three classes, the most ignorant and dangerous, and of course most pretending, are the first. The dangerous thing of a little learning was never better illustrated than in them. The oldest members of this fraternity are stanch Brunonians, and deal in nothing but bark, opium, valerian, and such like; the juniors are all disciples of Rasorid Broussais, and wield their depletory arms, leeches, venesection, emetics, &c. as boldly and indiscriminately as the former do their nervines and their stimulants. The hereditary doctors come chiefly from a particular district in Lower Albania; they have never studied medicine at all, but practise purely as empirics, on the stock of recipes and specifics transmitted as heir-looms from father to son. These, as well as the third class, retain their national costume; the first, on the strength of their European education, and because it confers some fiscal privileges, wear the Frankish dress.

In the same rank of knowledge and consideration as these last are the Jewish doctors, who generally keep shops in the bazaars and hawk about their drugs and their medical skill, their cosmetics, and their dye-stuffs, all corners. When summoned by a passing patient, they ask no questions, but feeling the pulse with an “I know your disease,” administer the spot a pill or powder, receive their fee of a couple of paras,* and commence their cry “*Ei Hekim*,” (good physic!)

It is not to be much wondered at, amid such a degradation of native science and skill, that the Turks should be disposed to think highly of European physicians. Indeed, such is their ignorance and faith in this matter, that every individual that appears among them in the European dress is not only regarded as a doctor, but is often *constrained* to act as such. *Frank* and *physician* are almost synonymous terms; and to every one that wears a hat, a hundred arms are outstretched wherever he goes, in a request to feel the pulse, the universally believed indication of all diseases and their cure. With this prejudice in favour of Foreign practitioners, it will readily be believed that Frankish adventurers of all sorts, whether or without medical knowledge, literally

Ambubaiarum collegia, pharmacopolæ
Mendici, mimæ, balatrone, hoc genus omne—

not wanting to take advantage of the national credulity, and to profess and practise an art of which they know absolutely nothing. Of the mental surgeons mentioned by Dr. Oppenheim, one had been a letter-

A marvellously small fee, since there are twenty paras in a German groschen and eight groschen in a shilling.—Rzv.

writer in Corfu, another a captain of a Ragusan trader, who took to physic when he had lost his ship. A non-commissioned officer in the army of Piedmont, who had taught French in the Consul's family at Adrianople, took it into his head to turn doctor; and, through the strong power of his own will, actually became so. Furnished by Dr. Oppenheim with *sixteen recipes*, he was forthwith installed as body physician to the Aga of Iambul. On another occasion, in Smyrna, our author was invited to meet in consultation with a French *physician*, who had been drum-major in the army of Napoleon!

After this account of the generally degraded state of medicine and its professors in Turkey, it is but justice to our author, and to the gentlemen commemorated by him, to state that there are to be found in various parts of the empire some Greek physicians who have received an excellent education in Europe, and who practise their profession with the skill of men of science and the dignity of gentlemen; but alas, their numbers are extremely limited.

With the exception of Constantinople, there are no apothecaries' shops properly so called, in any part of Turkey; nor is this to be expected in a country where the great majority of the practitioners cannot read, much less write a receipt. Of course, there is no national pharmacopœia, and every one prescribes and administers what seems to him good.

With all their ignorance, the professional men in Turkey are most highly esteemed. *Omne ignotum pro magnifico*: and the universal ignorance of the nature and powers of the healing art among this people, gives it, in their imagination, a value which it never can possess. Physicians, or persons so called, are universally regarded as in some degree sacred, and the title of doctor (*Hakim*) is the surest protection against all kinds of political and religious persecutions. Even the Greeks give to them the title of *Excellency* (ἐκχωρατος). Nevertheless, it would appear, from Dr. Oppenheim's account, that professional services are not very liberally rewarded, at least those of the native doctors.

"The sick Turk promises much, but the cured one pays little. (*Medicus in morbis, &c.*) He rarely pays for any thing more than the medicine; and, as the physician most generally makes that up himself, he regulates his charges accordingly. If the patient dies, there is but little chance of the physician receiving any thing for his trouble; and, if he recovers, he soon forgets both disease and doctor. These remarks, however, apply only to the native practitioners; the French or European physician is almost always adequately remunerated, though the Turk does not reward the skill of the physician, but only pays for the actual labour bestowed on him. This is sufficiently indicated by the name given to the physician's honorarium, (*Ajakderesi, foot-money*), which is put into his hand on his departure by the patient's servant, and amounts generally to a half or a whole *marmudié*, a gold coin worth from twenty to forty Turkish piasters, and equal to from two to four of our German dollars, [from five to twelve shillings, English;] besides this, the physician's servant, in most cases, receives as *bakschisch* (drinking money,) a *barbut*, the least Turkish gold coin, and equal to about six German groschen [about one shilling, English.] When these Ajakderesi are not tendered on the first or second visit, the physician does not repeat the visit till his fees have been sent him, and he is again invited to renew his attendance. In many cases, also, the attendance is not paid for till after the cure, which is particularly the case in attendance at the harem.

"In important cases, particularly in such as require energetic measures, or in cases of surgical operations, specific bargains are made, and these are sometimes

settled in presence of the cadi. In cases of this kind, the physician engages to cure the patient within a given time, for a stated sum to be paid to him after the recovery. In these cases, the Turks are constantly cheated by the Greeks, as they refuse to delay the payment till after the cure, and insist on receiving a third or even the half of the stipulated sum in advance, well knowing that the chances are, not that the patient will recover, but that he will die, and that the doctor will then lose any unpaid part of the sum agreed on.

"The most effective method for the physician to secure himself against fraud, is to make his bargain in the presence of the Cadi; for, as this latter is entitled by law to ten per cent. of the sum agreed on, he invariably decides in favour of the physician, unless indeed the patient offer him more than the ten per cent. he is legally entitled to; in which case, venal justice will most certainly preponderate in the opposite scale.

"Payment for medical attendance is not always made in money, but is sometimes tendered in the shape of provisions, slaves, horses, arms, &c. I had cured the governor of Adrianople of a long standing fever; after his recovery, he asked me if I was married; on my replying in the negative, he offered me, as a present, two beautiful Greek slaves; and, when I declined his offer, stating that no women were allowed in the train of the army, he wished to give me a boy, and was much astonished at my refusal of so valuable a present and want of gratitude for his liberality. In a little town in Asia Minor, called Balükassar, I had cured the Aja of a large nasal polypus; his expressions of gratitude for the service rendered him were very warm; 'but,' added he, 'I have no money to pay thee with; take, therefore, this Curdish stallion and the camels which shall accompany thee as far as Konia.' Accordingly, when I took my leave, I found in my train two camels loaded with sheep and goat cheese, which he had sent in lieu of money.

"In cases of operation, it is still more advisable that the physician should settle the terms in presence of the judge of the place; not merely to secure the payment of the sum agreed on, but also to protect himself against private revenge. On such occasions, the practice is for the patient, or one of his relatives, to accompany the medical practitioner to the Cadi; or, in large towns, where such a functionary is to be found, to the Mufti, who draws up a *fetiva*, by which the practitioner is exonerated from all blame and responsibility in case of a fatal result, and has secured to him a stipulated but generally inadequate sum, amounting on the average to from one hundred to two hundred piasters, (from twenty-five to fifty German mark.) The operation for the stone forms, however, an exception to this general statement, as it is satisfactorily compensated. In cases of failure, it is usual to pay only half the sum agreed on.

"But the case is very different if the physician should have the misfortune to lose a patient, not in consequence of a surgical operation, but of some internal disease; for, in such a case, he runs great risk of answering with his own for the life of the deceased, and more especially if he happened to be connected with the diplomacy of the country, or was invested with some high office. In a case of this kind, the relatives, exasperated by the loss of the property of the deceased, which is generally forfeited to the imperial treasury, will seek to avenge themselves on the person of the physician. Under other circumstances, the relatives are easily appeased with the remark that fate had fixed that hour for the death of the deceased, and, as he was gone to Paradise, death could not be considered as a misfortune for him." (P. 20.)

The intercourse of physicians with the female part of the population, when sick, is, of course, remarkably restricted by the national mode of treating women. The following account of Dr. Oppenheim's first visit to the harem is interesting to us chiefly in a medical point of view, as affording another striking illustration of the barriers thrown by the Mahommedan religion against the progress of medical science, or rather against the beneficial operation of medicine as a practical art. It is, of

course, impossible that any disease can be properly treated in the harem, —in other words, any disease of the female sex,—whilst such regulations are enforced as are noticed in the following extract:

"Like every one else, I was extremely anxious to judge from experience of the beauty of the Circassian and Georgian women, who are brought in their earliest youth to Constantinople to be sold, and thence sent into every part of the sultan's dominions, either to perform the menial offices in the harems, or to bear children to their lords. I was also very desirous to see the interior arrangement and management of these female colonies; and fortune soon offered me an opportunity of satisfying my curiosity. The favorite wife of the Kiaja-Bey (commercial agent) of the governor of Adrianople had been sick for three days, and the Pasha, who placed implicit confidence in me, declared I could most certainly cure her, if permitted to see her. The Kiaja-Bey, to whom I was not personally known, sent to request me to accompany his Harem Kiaja, a black eunuch, to his harem, which lay at more than a quarter of a league from his house. We proceeded to a low door, which was opened on our knocking, and were admitted into a garden: here I found an airy pavilion, the coolness of which was preserved by a magnificent fountain and cascades. In this delightful spot I was invited to rest, and served with coffee and a pipe, while my arrival was announced. After a delay of a quarter of an hour, I was conducted through the garden to a second door, where I was received by a veiled woman, the superintendent or portress of the harem, who likewise conducted me through a garden into the building appropriated exclusively to the use of the women; when a number of slaves and children, white and black, crowded round me with eager curiosity, or peeped from behind the curtains. At last the sick chamber was opened to me; a neat little apartment with red furniture and closed curtains. The fair patient was lying on cushions arranged on the carpeted floor, close to an ottoman, and covered from head to foot with a white cloth, in such a manner as to leave the beholder in actual doubt of her presence. I was directed to take a seat on the ottoman nearest to the head of the couch, and all the curious attendants were dismissed, leaving in the apartment, besides myself and interpreter, only the two children of the sick lady, of four and five years of age, and an old nurse. The patient answered my questions through the veil, without hesitation or prudery; even such as would have been considered by young ladies in Europe as not very agreeable. When I expressed a desire to feel her pulse, two pretty white hands were protruded from under the covering; and, when I asked to see her tongue, the patient slightly raised her veil, yet in such a manner as to allow me to obtain a glance of the features of a most lovely brunette, that could scarcely have reached her twentieth year. She, however, instantly after shrunk back under the drapery, like a snail into its shell, and requested I would now leave the room, and address any further questions to the nurse, who was well acquainted with her state. I was consequently conducted by the nurse into the *semlick*, the antichamber of the master, and I was again treated with coffee and a pipe.*

"I was ultimately conducted into the presence of the Kiaja-Bey, who questioned me respecting his wife's state of health, and wished to know when she would be perfectly recovered, and if it would be necessary that I should visit her again? I answered, that the latter would not be necessary, and that the lady would be perfectly well in a few days, if the directions I had given were attended to. He testified his satisfaction with these answers by a motion of his head, and, after the honorary ceremony of coffee and pipes had once more been complied with, he directed the *hasnadar* (treasurer) to hand over to me a purse of five hundred piastres. My prognosis was verified: on the third day the lady was perfectly

* "I was much satisfied with this my first visit to a Turkish harem, and expected to meet with the same reception on every occasion; but I had knocked, on my first excursion, at the most liberal door, for I seldom after met with such easy access."

recovered, and my reputation rose with all classes to the highest degree of confidence." (P. 34.)

"After a physician has visited the inmate of a harem, the usage of the country requires that he should send every morning to the master, to enquire how the *channem* (the gracious lady) has slept, and finds herself. This message is forwarded by the master to the invalid, in the name of the physician; and the lady returns her answer with thanks, and mentions at the same time when and at what hour she wishes to see him again. This ceremony is continued till the physician receives from the harem a silk shirt, a pair of silk drawers, an embroidered sash, an embroidered handkerchief, and a pair of embroidered socks. This is a token of thanks from the lady to the physician for her cure. The medicines are paid for by the husband at a later period, as well as the attendance, in case the fees have not been paid at the time of visiting." (P. 40.)

A striking mark of the general ignorance of the people concerning medicine, and of the ignorance and baseness of its ordinary professors, is furnished by the extraordinary value attached to the pulse as a means of diagnosis and prognosis.

"Nothing can give the doctor a higher place in the estimation of his patient than his drawing from the state of the pulse alone the whole of his judgments respecting the state of the malady. By means of it, he must not only know the complaint, but also whether and how the patient has slept; if he has taken any thing, and what this may be; the nature of the evacuations, &c. Every question the patient has to answer is painful to him, and with every query the estimation in which the physician was previously held obviously diminishes. At the very first visit the physician is expected to indicate, merely by feeling the pulse, the minute at which death will ensue, or when a favorable crisis will relieve the patient from all his sufferings. Nor is the opinion that feeling the pulse is the only thing necessary to the physician confined to the lower order, but is very prevalent among the Turks even of the highest rank. Of this the governor of Adrianople, Halihsh Pasha, afforded me a striking proof. On a visit to the Russian camp, after the peace, he entered the tent of General Paulin, attended by a numerous suite. Among the persons assembled were two other physicians, besides myself. Immediately after we had been introduced in this capacity to the pasha, he extended his arm to each of us in turn, and requested we would feel his pulse: this being complied with, he turned to the general, and pointed out to him the one he considered the best physician; this, he said, he had discovered from his manner of feeling the pulse, and wished them to make arrangements with him to enter into his service. This leads the cunning Greek practitioner to ascertain from the servants, in an indirect manner, the state of the patient, whose confidence is thus gained, and whose credulity is so much abused as to make him believe that the practitioner can, by feeling his pulse, see into the inmost recesses of his body." (P. 15.)

It is unnecessary to say that, in such a condition of the knowledge of medicine, its practice must be miserably defective, even in the hands of those who give the preference to ordinary medical measures over the weapons of superstition. Like the ignorant in other countries, the Turk, when he takes a *bona fide* medicine, loves to see some positive physical effect from it; and the larger the dose administered, he is, in general, the better satisfied. Emetics, however, are not approved of, and enemata are totally refused. It is customary, in the month of May, to undergo a course of medical treatment. This is usually commenced with a purgative, which is followed up for three or four weeks by tisans of the juices of different roots, as taraxacum, also by potions of whey, and, above all, by viper-broth, which the Turkish doctors regard as the

best of all purifiers of the blood. The following account of a *consultation* between our author and a Persian physician may amuse our readers, and at the same time will give them some insight into the state of anatomical and therapeutical science in the East.

"At Magnesia, in Anatolia, I was requested to visit a distinguished Ulema, who was suffering from a decided hepatitis. I immediately opened a vein, and gave him every two hours two grains of calomel, which I had with me. The medicine given to him by the Persian doctor consisted of large jars of decoctions of plants, as the sickness, according to his decision, proceeded from a drying and consuming of the entrails. On the following day, shortly before my departure, I accidentally met the Persian physician at the bedside of the patient. He was a tall, spare man, with black hair and beard, an austere eye, and a fanatical look, which bespoke his hate and contempt for the unbeliever. It appeared to cost him a great effort to address me: at last, when I had asked the patient how he was, and he had admitted that he felt better after having taken my powder, the doctor said to me, 'Dost thou dare to say that his bowels are not diseased?' To this I assented. 'In what, then, are contained the bowels in the belly?'—'In a sac, in a skin.'—'It is false! They swim in a lake or pool: in this case the pool is dried up, and the entrails are nearly on fire: hence the intense thirst, the heat, the pain in the body, the dry tongue and skin, and scanty discharge of urine; and therefore thou hast dealt unjustly towards him, in depriving him of fluid blood, and in giving him solid instead of fluid medicines. To inflammation thou shouldst oppose moisture; to dropsy, dry remedies; heat should be expelled with cold, and cold with heat.'" (P. 68.)

A really valuable part of Turkish medicine, however, is the bath, the general use of which, with its accompanying operations of friction, stretching, pinching, and all the other manipulations of *massing* and *shampooing*, is of the highest benefit in the prevention and treatment of many diseases, more particularly in a country where the more ordinary mode of cure by internal remedies is almost always useless, if not injurious. The following is Dr. Oppenheim's account of the bath and mode of bathing.

"The public baths are beautiful stone buildings, covered with domes, and of elegant architecture; several of which are found in every town. They consist of large apartments, with marble floors. At the entrance there is a roomy hall, lighted from the roof, and having a large basin and fountain in the middle. Along the walls of this hall are ranged high and broad benches, covered with mattresses and cushions; and here the bather undresses, binds a silken cloth round his body, and puts on a pair of wooden sandals before he proceeds to the bathing rooms. The first of these is but moderately heated, and is intended to prepare the bather for the heat of the inner vaulted room (about 100° Fahrenheit,) which likewise receives light from the cupola. In the middle of this last-mentioned apartment there is a large square bench, raised a few inches above the floor, on which the bather reclines, while an attendant kneads for a considerable time every part of his body. After this operation, the bather rests for some time in this or in one of the adjoining recesses: these have a heated marble pavement, and large marble basins to receive the hot water from pipes fixed in the walls: properly speaking, this is the bathing apartment. After the bather has sufficiently recovered from the kneading operation, he stretches himself naked on the heated pavement, and his whole body is rubbed and washed with a piece of horse or camel-hair cloth, and the lather of scented soaps, and then washed clean with hot water; he is afterwards dried, and both head and body are wrapped in warm cotton clothes, and in this attire he returns to the first or outer hall, where he rests for half an hour on one of the couches, takes a cup of coffee or a glass of sherbet, and

smokes a pipe: he then dresses, and returns home. The cost of this bath is very trifling, and must be so, since it is within the means of the lower order of the Turks, who use it frequently. The baths for the women are everywhere separated from those used by the other sex." (P. 18.)

As in some of the former instances, we find at once the miserable condition of medical knowledge and of morality strikingly illustrated by the account given, by Dr. Oppenheim, of the frequency of poisoning in Turkey, as well from ignorance as intention.

"As there is no medical police whatever in Turkey, the sale of poisons is not forbidden, and fatal cases of poisoning, arising out of the ignorance of the purchaser as well as seller, are not at all uncommon. The doctors who keep medicaments for sale give to every applicant whatever he asks for, and in any quantity. Sugar, salts, arsenic, &c. are heaped together in open chests and baskets. Arsenic is not only sold in the apothecaries' shops to any one who may apply for it, but the next article called for is weighed in the same scales, to which, perhaps, adheres poison enough to send the purchaser into the other world. When called into one of these wretches, made patients by their criminal negligence, the doctors, instead of feeling horror at the dreadful cramps and convulsions, unconcernedly shrug their shoulders, and leave him to his fate, declaring that he must be possessed by some evil spirit; while the surrounding relatives, the Turkish imams and dervises, as well as the Greek papas, stun the dying man with their cries.

"But premeditated poisonings are much more frequent than the accidental, and the native practitioners do not scruple to lend their ministry to these criminal transactions. According to the religious views of many Turks, crimes of this nature are not forbidden; as, in practising them, they are only endeavouring to be beforehand with their enemy, who is only watching for an opportunity to act in the very same manner with them: moreover, they consider that, if fate has not decreed the death of their enemy, any attempt to remove him will certainly miscarry, from some cause or other.

"But, if it is revolting to see an article of faith perverted in such a manner as to reconcile the mind to such crimes, how much more so is it to see them committed by Christians, who by no possible sophistry can reconcile them to themselves! But, unfortunately, it happens but too frequently that doctors, in the service of rich Turks, pachas, and the like, lend their aid to such misdeeds. It is, therefore, not at all advisable for a conscientious physician to enter into the service of a Turkish grandee, as his refusal to comply with such requests might not be unattended with personal danger." (P. 29.)

And, indeed, our author would seem, from his own account, to have proved, by personal experience, to what a pitch of degradation the noble profession of physic is reduced in that barbarous country, and to what dangers they are exposed who venture to thwart the prejudices or to resist the crimes of its inhabitants: he was at one time invited by a great officer to aid him in getting rid of his enemies, by administering poison to them; at another—and probably on account of refusing to do so—he was himself nearly poisoned, having found, one morning, something better than two drachms of sublimate at the bottom of his coffee-cup!

With such a state of medicine and of its professors as above described, it will hardly be expected that Turkey can boast of many of the medical institutions, whether for the communication of scientific or practical knowledge, which adorn more civilized nations. The present sultan, it is true, has established, at Constantinople, some kind of a school for the instruction of young men in medicine and surgery, and has, as we have already mentioned, caused to be printed for its use a sort of Medical Cyclopædia in the Turkish language; but this is the only thing of the

kind in the empire. Neither are there any hospitals in Turkey for the reception of the sick. The only establishments of this kind that exist are lunatic asylums; and it is a curious fact that these are not only found in considerable numbers, but some of them are of great extent and even magnificence. This circumstance is explained by the universal belief among the Turks, that insane persons are either *possessed* or are objects of divine influence: in either case they are deemed sacred, and are venerated accordingly.

"In most large Turkish towns there are asylums for persons afflicted with diseases of the mind, called in Turkey *Timaristan*, which do the greatest honour to the heart and understanding of the people, as the management and order observed in them are much beyond the progress of civilization in other matters. These institutions are situated in the vicinity of the great mosques, and consist of convenient though not very clean cells, built round a court with piazzas in front. The Sulemanic Lunatic Asylum at Constantinople, connected with the mosque of the Sultan Suleiman, as well as that of the Sultan Selim at Adrianople, are of considerable extent. The first is a square building of hewn stone, in the Moorish style of architecture, about 180 feet in length, 160 in breadth, and one story high; the interior is divided into two courts, surrounded by a marble colonnade, which gives admittance to the wards. The roofs are a series of cupolas, intersected by arched vaults, and the second court is embellished with a beautiful fountain.

"Lunatic hospitals of this kind, but on a smaller scale, are to be met with in every part of the kingdom, containing a hundred and sometimes even a greater number of patients. Idiots and epileptic patients constitute the greatest number; of maniacs there are but few. As persons afflicted with mental diseases are in this country held sacred, they are treated with attention and humanity, and are, in fact, in a much better condition than the inmates of many asylums among the Christians. These *Imarets*, or asylums, however, are often very inadequately endowed, or their resources not properly managed, and consequently it is not easy to procure at all times sufficient food for the inmates. In these cases they depend on the compassion of their fellow believers, by whom they are irregularly fed. On no occasion does a Turk tease an idiot; he may smile at his follies, but he never leaves him without having first bestowed an alms on him." (P. 107.)

The inmates of these asylums are, as has been stated in the foregoing extract, chiefly idiots, while maniacal patients are rarely observed; and this is a circumstance well meriting the attention of the medical philosopher and the moralist. Here is a vast empire, in which one form of mental infirmity prevails, almost to the exclusion of other forms, so common and even more predominant than idiocy in other countries. The causes of this striking fact seem well explained by our author.

"It is proved by experience that, the higher the point to which the cultivation of the mind has attained in a country, the more frequent are the cases of mental derangement, and that with the rising morality of a nation homicide decreases, while suicide increases; in other words, that, generally, homicide and suicide stand in inverse ratio. Turkey offers the most convincing proofs of the correctness of this statement. In a country where the mind is sunk into an incurable lethargy, —where civilization is unable to rise out of the abject degradation into which it has fallen,—many of the usual causes of aberration of the mind must necessarily be wanting; such as excessive study, deep and prolonged reflection on any one subject, and such-like. Drunkenness, which with us is so frequently the cause of deranging the faculties of the mind, is unknown among the Turks, from their complete abstinence from spirituous liquors. By marrying when very young, they are enabled to satisfy the earliest desires for sexual connexion; and their imagination is never excited by obscene pictures or reading, nor their desires prematurely called forth by stimulating food; lastly, unrequited love, which has so

baneful an effect on the sensorium, is unknown in the East, as well as romantic love in general. Here the virgin surrenders without a sacrifice, man conquers without a struggle, enjoys without delicacy, and passes suddenly from eager desire to satiety. Jealousy, the torture of man in Europe, is consequently unknown to the Turk; and if in cases of adultery, his vengeance falls with such dreadful weight upon his wife, as well as on her seducer,—he is not spurred on by jealousy, but by wrath against the contemner of his faith as well as of his person; for, according to his belief, whoever touches his wife dishonours his religion. The resignation enjoined to the Turk by his religion, as well as the fatalism in which he believes without the slightest scepticism, also contributes, in no small degree, to prevent the loss of property, dignity, or office, the disappointment of hopes, unsuccessful speculations, the death of a beloved person, &c., from producing mental derangement. Examples of Mussulmen being driven to despair, madness, or self-destruction, by misfortune, are certainly among the rarest occurrences. That, however, the reason of this is to be sought rather in the religion than in the low state of mental cultivation, is proved by the circumstance that, among the Christian inhabitants of the East, Greeks, Armenians, &c., who are but very little above the Mahometans in mental cultivation, diseases of the mind are comparatively much more frequent, and that cases of suicide, though but of rare occurrence, are however not quite unknown." (P. 99.)

If we can thus satisfactorily explain the comparative infrequency of furious madness or acute melancholia among the Turks, we are enabled, with at least equal certainty, to account for the great prevalence of idiocy among them; a prevalence which Dr. Oppenheim regards as greater than is to be met with in any other country. It is true that the apparent amount of prevalence is greater than the real, since we are told that a great many persons *feign* this disease; some, that they may enjoy the advantages attendant on the victims of so sacred a visitation; others, that they may escape the punishment of political offences, real or imputed, or that they may save their goods or persons from envy and revenge. Of the real idiots a certain portion are so from birth, but a good many are brought to this state through the use of opium and other narcotic poisons; particularly children, who are intentionally kept under the combined influence of such means, until the effect is produced.

As a general rule, the Turks, both men and women, enjoy remarkably good health, owing in a great measure to the absence of many of the arts and artificial modes of life which exert so great an influence over the inhabitants of more civilized countries. It is not, however, ascertained whether they are a long-lived race or not, owing to the total want of mortuary registers. Women begin to look old at an early period of life, owing, no doubt, partly at least, to the precocious development of some of the principal functions. "They have the catamenia about the tenth year, they marry in the twelfth, soon become mothers, have many children, cease to menstruate at thirty, and speedily fade into old age." (P. 54.) Their labours are in general remarkably easy, inasmuch that even women of the upper ranks are on their feet on the second day, and on the third leave their chamber to take a bath. The mothers invariably nurse their children, but the ladies consign this task to a wet-nurse during the night. It is the law of Mahomet that the child should be suckled two years, if it will take the breast so long; but this term may be abridged with permission of the husband. During the period of nursing, sexual intercourse is strictly forbidden by the Koran. Abortion, intentionally procured, is extremely common, particularly among the higher ranks: it

is not regarded as criminal by the Mohammedan law until the fifth month of pregnancy, at which period the fœtus is considered to become possessed of life.

We shall conclude this review of the State of Medicine in Turkey by noticing such of the diseases, whether medical or surgical, as present, in the account given of them by the author, anything interesting, either as regards pathology or practice.

Vaccination was many years since introduced into Turkey by Dr. De Carro, of Vienna, but has as yet made but little progress in the interior of the kingdom. The present sultan has had his own children vaccinated by Dr. Auban, a French physician. Inoculation of the smallpox, first practised in Turkey, is in much more general use: it is chiefly in the hands of the women, who operate by making some superficial incisions with a razor, and then placing in these either a thread impregnated with the variolous fluid, or some of the pulverised scabs.

Scarlatina appeared to Dr. Oppenheim very prevalent and very fatal in Turkey; but the most interesting circumstance respecting it stated by him, is what he regards as a marked instance of the prophylactic powers of belladonna on the large scale.

"The disease had also broken out among the troops in Monastir, where no separation of the unhealthy from the healthy was practicable; several soldiers had been carried off, and the disease had even snatched a victim from the grand vizir's harem. The vizir, who loved his troops as his children, became alarmed; when I thought it my duty to make him acquainted with our preventive measures. He issued an order to his soldiers to take carefully a medicine that would be prepared for them; and, as he set the example by taking it himself from the hands of his physician, they obeyed with less reluctance. As I had to fear that the counting of the drops would not be properly attended to, I preferred the form of pills, in spite of the opposition of the apothecaries, who for a whole week were engaged in nothing else than making pills, although only two battalions (1,200 men) of regular troops were at that time in the town. I directed one pound of extract of liquorice to be mixed with thirty-six grains of extract of belladonna, and the mass to be made into two-grain pills, of which each soldier was to take five morning and evening. I entertained the hope that this dose, though smaller than usually prescribed, would have the desired effect with men who had never taken any medicine, and who all were between the ages of fifteen and twenty-five; and the result answered my expectation; for, although the epidemic continued to rage in the city, and the soldiers were quartered on the Christian and Jewish part of the population, only twelve of all that had taken the belladonna fell sick, of which, however, one-half died. In ten days previously to the administering of the medicine more than forty cases of sickness had been entered on the sick-list." (P. 57.)

Measles were never observed by our author, nor could he find, from his medical friends, that they prevailed in the country. Worms are of frequent occurrence among children, and are cured by many popular remedies; among others, the powdered kernel of the wild apricot. Dr. O. met with six cases of Guinea-worm. Hydrocephalus is said to be common; but internal scrofula and rickets are decidedly rarer than among European children; a circumstance which our author attributes to the use of a wholesome diet, chiefly rice, and the enjoyment of a purer air.

In all nervous and convulsive diseases, the ancient remedy, *Bezoar-stone*, enjoys the highest reputation, and is indeed in such request that a profitable trade is driven in manufacturing artificial substitutes for it.

Spitting on the affected part and also a sort of animal-magnetism are favorite and effectual remedies. The manipulations of an Asian Dervish, noticed in the following account, would not discredit a disciple of Mesmer himself.

"The patient was suffering from headach, and sat in the Turkish fashion on the ground. The operator knelt before him, stroked his forehead with the thumbs of both hands from within outwards, then drew the skin in folds or wrinkles in an opposite direction, pressing it at the same time forcibly, repeated a prayer, spit two or three times on the ground, then on the affected part, and at last rose up, convinced, as well as the patient, that the complaint would speedily vanish." (P. 70.)

Intermittent fever, in all its forms, is extremely common, and is by the native doctors attributed to the presence of an evil spirit, and is by them to be cured by exorcism; the same opinions and practice hold with regard to gout and rheumatism. Quinine is however used by the Greek and Turkish doctors; but can hardly be obtained pure.

The following account of a disease endemic in Turkey and which Dr. Oppenheim considers as having hitherto escaped the observation of European physicians, is curious. We agree with him in regarding it as unknown in northern Europe at least. He proposes to call it *Rheumatische Knollenkrankheit* (literally "the rheumatic knobby disease"); but we have great doubts of its rheumatic nature. It reminds us somewhat of a peculiar acute disease of the lymphatics of the extremities prevalent in the West Indies, and which appears, in some cases at least, to be analogous to, if not the actual precursor of the elephantiasis or Barbadoes leg.

"I noticed a particular endemic disease, which I believe has hitherto escaped observation, and, as it is probably closely related to rheumatism, I feel inclined to give it the foregoing name. Round hard tumours will frequently rise in a single night, though the patient may have retired to rest in perfect health, sometimes without any ascribable cause and at others after suppressed perspiration, or cold caught on sudden changes of temperature; they always make their appearance between two joints, or at least at some distance from the joint, and constantly on the flexor side of the limb; the tumours, as before mentioned, are round, hard, the extreme circumference undefined, not easily moved, and very painful when touched; the skin remains unchanged and without inflammation, and the temperature is not heightened; they vary in dimension from that of a hazel-nut to that of the fist, and attain this size in the course of a few hours; they then remain stationary. These tumours more frequently occur in the upper than in the lower extremities, and again more frequently in the forearm and leg than in the upper portions of the same limbs; very frequently they appear in the palm of the hand, which then swells up to the form of a ball, also in the sole of the foot, and on the fingers and toes: sometimes only one tumour appears at the same time, but more commonly several.

"Under this disease the general health is unchanged; all the functions are regularly performed; digestion alone seems in a small degree disturbed, the tongue being loaded, &c. This disease offers no premonitory symptoms. The cellular texture immediately surrounding the muscles appears to be the seat of it, in which a local, abnormal, excited or more probably suppressed activity of the lymphatic vessels, produces an exudation. Young, strong, and robust persons are more subject to this disease than the aged, weakly, and cachectic; men also are more liable than women; children are rarely or never afflicted with it.

"Persons not accustomed to the climate are said to be very liable to it. The prognosis is very favorable if assistance be speedily called in; but if neglected, these tumours will continue during the whole life of the patient, and by their pressure occasion pain at every motion of the limb; stiffness and incapacity of bending

the joint follows, and, at last, total inactivity and continued pressure bring on decay.

"The remedy used by the natives is as simple as it is effective, and consists in uninterruptedly rubbing and kneading the part from below upwards, in semicircular movements, either with the first joint of both thumbs or with the palm of the hand. The rubbing is continued in spite of the suffering and complaining of the patient till the tumour has completely disappeared, and is frequently continued for four or six hours and sometimes longer. The operation is most effective when performed in the Turkish sweating-bath. A repetition of the operation is not esteemed necessary, though returns of the disease are not unfrequent. In almost every place there are some persons, most frequently women, who are exclusively engaged in this rubbing process. As a matter of course, mystic incantations are not omitted in the operation. In old standing cases, no remedies whatever are attempted, although very probably strong stimulating means would effect the resorption." (P. 74.)

In an account of the state of health and disease in Turkey, it would be impossible to overlook the well-known habit of opium-eating and its effects. Drinking wine being forbidden by the laws of the prophet, the habit of drunkenness is rare in Turkey; but as the culprit is equally guilty and equally obnoxious to punishment, whether he drinks little or much, it commonly happens, our author says, that the person who once commits a debauch, becomes a perfect drunkard. And although not forbidden, like wine-drinking, by the Koran, opium-eating almost invariably leads to the same extravagant excess and melancholy results. Once begun, it is hardly ever relinquished; once a *Theriaki* always a *Theriaki*.

"The causes leading to the use of opium are many, and among them may be reckoned the following: long continued diarrhœa, as a remedy for which opium is used in the first instance, and its use afterwards continued from habit; chronic coughs, in which opium is also used as a popular medicine; habitual drunkards also frequently have recourse to opium as a new stimulus, after they have abjured wine in some fit of repentance. Persons holding high offices or dignities in the state also have recourse to opium, when the preservation of their character forbids them the use of wine: some very strict believers also take opium as a restorative in cases of great exertion, as the *Tatars* (couriers), who travel with astonishing celerity.

"Opium eaters generally begin with doses of from half a grain to two grains, and gradually increase the quantity till it amounts to two drachms and sometimes more a day; they usually take the opium in pills, but avoid drinking any water after having swallowed them, as this is said to produce violent cholice: to make it more palatable, it is sometimes mixed with syrups or thickened juices; but in this form it is less intoxicating and resembles mead; it is then taken with a spoon or is dried in small cakes, with the words '*Mash Allah*,' 'the work of God,' imprinted on them.

"The effect of the opium manifests itself one or two hours after it has been taken, and lasts for four or six hours, according to the dose taken and the idiosyncrasy of the subject. In persons accustomed to take it, it produces a high degree of animation, which the *Theriaki* (opium-eaters) represent as the acme of happiness.

"The habitual opium-eater is instantly recognized by his appearance. A total attenuation of body, a withered, yellow countenance, a lame gait, a bending of the spine, frequently to such a degree as to assume a circular form, and glossy, deep sunken eyes, betray him at the first glance. The digestive organs are in the highest degree disturbed, the sufferer eats scarcely any thing and has hardly one evacuation in a week: his mental and bodily powers are destroyed,—he is impotent. By degrees, as the habit becomes more confirmed, his strength continues decreasing, the craving for the stimulus becomes ever greater, and, to produce the desired effect, the dose must constantly be augmented.

"When the dose of two or three drachms a day no longer produces the beatific intoxication so eagerly sought by the Opiophagi, they mix the opium with [corrode] *sublimata*, increasing the quantity till it reaches to ten grains a day; it then acts as a stimulant.

"After long indulgence the opium eater becomes subject to nervous or neuralgic pains, to which opium itself brings no relief. These people seldom attain the age of forty, if they have begun to use opium at an early age. The fasts in the month of Ramasan are for them fraught with the most dreadful tortures, as during the whole of that month they are not allowed to take any thing during the day. It is said that, to assuage their sufferings, they swallow, before the morning prayer, besides the usual dose, a certain number of other doses, each wrapped up in its articular paper, having previously calculated the time when each envelope shall be unfolded and allow the pill to produce the effects of their usual allowance. When this baneful habit has become confirmed, it is almost impossible to break it off; the torments of the opium-eater, when deprived of this stimulant, are as dreadful as his bliss is complete when he has taken it; to him night brings the torments of hell, day the bliss of paradise. Those who do make the attempt to discontinue the use of opium, usually mix it with wax, and daily diminishing the quantity of the opium, the pill at last contains nothing but wax." (P. 93.)

We shall conclude this article with a few remarks on the state of surgery in Turkey, which Dr. Oppenheim informs us is even in a still lower state than that of medicine, and the chief cause of which he justly refers to the total unacquaintance of the practitioners with anatomical knowledge. And here, as in almost every thing else, the Mahommedan religion interferes most injuriously. Not only is dissection forbidden by the Koran, as we have already said, but almost all the subjects of surgery are as it were *tabooed* by the debasing superstition which it enforces. Every injured person, whether with open wounds or not, is unclean, and all unnecessary spilling of blood is rigidly forbidden. When to these causes we add the considerations that to the Turks the life of any man is of small value, while to all death is a blessing, we need not be surprised to learn that operative surgery, at least, is at the lowest possible ebb in this wretched country.

Notwithstanding their prejudices and the dogmas of the Koran, still the Turkish surgeons do draw blood, sometimes even more plentifully than we ourselves should be inclined to do as a remedy, and also perform bloody operations. Scarification is a frequent and favorite remedy in many diseases, and is performed in the primitive fashion, originally common among most uncivilized nations, and still not quite obsolete, we believe, in the highlands and islands of Scotland, viz. by making incision with a razor and using the mouth and a sheep's horn as an exhausting means for extracting the blood. Venesection is also in frequent use, and is performed by means of a round-pointed lancet contained in a sheath, from which it is projected, by means of a bow or spring, to a certain length into the vein.

"Many so-called surgeons confine their practice to the treatment of one particular disease or to one particular kind of operation: there are consequently, as here used to be in Europe, bonesetters, operators for rupture, cataract, stone, &c. and who frequently, in spite of their ignorance, enjoy considerable fame and confidence. The eye-doctors are principally Persians and Arabians; the operators for rupture and stone, as well as the bone-setters, are for the most part *Moreots* and *Zagoreots*. The method of performing these operations is generally inherited from father to son, and is consequently an heirloom of a few families. On this account, they also conceal their mode of treatment as much as possible, and allow

neither the initiated nor the uninitiated to be present at their operations; even the nearest relatives are dismissed from the apartment, and the operator remains alone with the patient, seldom admitting an assistant. Notwithstanding the express command of the Grand Vizier to the surgeons, to admit me to all their operations, I succeeded but in very few instances to be present: every kind of excuse to avoid complying with this order was put in practice, and even the patients were induced to request that I should not be admitted to the operation. The most ostentatious of all these operators were the bone-setters, who unblushingly asserted that they could cure any fracture, however complicated and however much the bones might be splintered; and that the limb would suffer injury neither in form nor utility, and on this ground they claim the superiority of their own surgery over the European, as their certainty of healing the limb renders amputation unnecessary, to which we are obliged to have recourse when unable to heal a fracture.

"Exaggerated, boasting, and bombastic as these assertions are, it is however not to be denied that, with all their ignorance, they treat fractures with very great success. Their method of placing the limb in its proper position, and keeping it in that position during the cure, by means of a gypsum case or envelope, is well known." (P. 114.)

"The treatment of luxations, the most difficult part of surgery, and which requires the most accurate knowledge of anatomy, is engrossed principally by the bone-setters and some female practitioners. Several old luxations of the shoulder and elbow which I have had to treat, gave me no high opinion of the skill of these people." (P. 117.)

"Cases of hernia are common, not only among the lower order of the Turks, but also among the higher classes, and often prove fatal from bad treatment or neglect. The early age at which they begin to ride, and the constant practice of this exercise, on ill-constructed saddles and rough roads, may be assigned as the principal cause of rupture among them. In no part of the empire are there any trusses manufactured: some of the *grandees* procure them from Vienna, France, or Italy, but, after long use, repairs, and the alterations they are made to undergo, they resemble any thing as much as what they were originally intended for. The operation for strangulated hernia is unknown to the Turkish surgeons, but they profess to cure radically such cases as are not strangulated, and this they effect by ligature and the actual cautery.

"I had an opportunity of seeing this operation performed in *Jenitschar* (*Larissa*), by a surgeon from *Sagor* named *Michalaki*. The patient was a powerful man of rather more than forty, who had suffered for a considerable time from an inguinal rupture, which by its increase in size had now become very inconvenient in riding. After the operator had convinced himself that the rupture admitted of being pushed back, the patient was secured, with his arms crossed, to a board, and this so placed that the feet were directed upwards and the head down. With one hand the operator held back the rupture, and with the other he made with a razor an incision of about three inches in length, extending from about one inch above to two inches below *Poupart's* ligament. He then, as he expressed himself, got sight of a bladder (the hernial sac); this he drew forward with both hands as far as he could, he then passed a strong silken thread under this sac close to the inguinal ring, and having secured it, cut through the sac below the ligature; but he had included the spermatic cord in the ligature, so that the testicle must afterwards have decayed." (P. 117-119.)

"The stone is of frequent occurrence in some provinces of Turkey, namely, Macedonia, Epirus, Thessaly, &c., and in some families is even an hereditary disease. The method of the Turkish stone-cutters is as follows: The sick person suspected of having a stone in the bladder, is examined by the operator who introduces a finger into the anus, and feels about the perinæum with the other. If in this manner he can find a stone, he determines on the operation. His method is the old *Celsian*. He knows of neither sound, probe, nor forceps. His whole

of instruments consists of a razor, for the incision, and a blunt indented hook, is used when the stone is too large for the aperture or presents itself in such a manner that it cannot be removed by pressure or by the finger. When the stone has been secured and his legs held up in such a position that the perineum is extended, the operator introduces his forefinger into the anus, presses the stone downwards, and makes an incision on the part where it most projects, consequently without any consideration whether it be on the right or the left side of the rectum the incision is made at one cut through the skin, fat, cellular texture, and muscle of the bladder, the operator regulating the length of the wound by the size of the stone, which after the incision has been made springs forward, on the point of the finger in the anus, just as is the case in cataracts when the incision in the cornea is made. Should the stone, however, present itself unfavorably for extraction or be too large for the orifice of the incision, the operator has then recourse to the above-mentioned hook indented on the inside, and with this he endeavors to bring the most favorable diameter of the stone to the aperture, and extracts it with more or less violence. But it sometimes occurs that even with the assistance of the hook, the operator fails in extracting the stone, and that the operation has been undertaken in vain: in this case the patient is left to die. After the stone has been extracted, the wound is stopped with cotton, on which some mild salve has been spread, and the business of the operator is ended. No further treatment takes place, nor are any means used to prevent inflammation or to remove it, if it has already taken place; no particular rule of diet is followed; on the contrary, the patient is denied the rest of which he is so much in need, and for the first twenty-four hours after the operation he is prevented from sleeping by the uproar and noise of the guests aided by discordant music; and he is even denied it, if, in spite of all this, sleep should prevail. Whoever happens to be in the sick chamber at sun-set is not allowed to leave it before sun-rise, nor are visitors admitted at a later hour. The recovery is usually complete in from three to a fortnight, and according to the assertion of the operator two-thirds of the patients operated on recover. Of the causes of death in such cases my informant had never thought, had no idea of inflammation, and never knew death from internal or external hemorrhage. He showed me several stones of considerable size, which he had removed by the operation, and the former possessors of which were still alive." (P. 121-123.)

From these extracts we conclude this highly interesting work; and we cannot take our leave of it without expressing our opinion, in strong terms, of the intelligence, industry, and discrimination displayed by its author in the collecting and arranging his materials in their present form. The contemplation of such a mass of ignorance, superstition, immorality as is contained in the preceding pages cannot fail to excite us to much that is irksome in our own lot, to make us grateful and proud that it is our good fortune to know and to practise medicine as it exists among ourselves, and to cheer us with the hope that, since the labours of our predecessors in the more civilized nations of Europe have already advanced it to a state of comparative perfection when compared with that in which it exists in Turkey, the exertions of our successors may go still further, and with more rapid strides, to bring it yet nearer to the point of scientific certainty and practical precision, which a benevolent mind must so ardently desire.

We have just noticed in one of the German Journals (*Zeitschrift*, &c. Feb. 1837,) that Homel's work on Pathology has been translated into Turkish by command of the Sultan, and printed for the use of the students of the medical school of Constantinople by the imperial press. The translator is Osman-Effendi, son of one of the most distinguished *Ulema*. The price of the volume is eight piastres, (189 groschen.)

ART. V.

1. *Practical Observations on various Subjects relating to Midwifery.* By JAMES HAMILTON, M.D. F.R.S.E., Professor of Midwifery in the University of Edinburgh. Part II.—*Edinburgh*, 1836. 8vo. pp. 428; with Plates.
2. *Observations on the artificial Dilatation of the Mouth of the Womb during Labour, and upon Instrumental Delivery, &c.* By ROBERT COLLINS, M.D., Late Master of the Dublin Lying-in Hospital.—(*Dublin Medical Journal*, March, 1837.)
3. *An Inquiry into the Management of the first Stage of Labour.* By E. W. MURPHY, M.D.—(*Dublin Journal*, May, 1837.)
4. *Facts and Cases in Obstetric Medicine; with Observations on some of the most important Diseases incidental to Females.* By J. T. INGLEBY, Member of the Royal College of Surgeons, London; Senior Surgeon to the General Dispensary; Surgeon to the Magdalen Asylum; and Lecturer on Midwifery at the Royal School of Medicine, Birmingham.—*London*, (no date.) 8vo. pp. 296.

I. THE object of Dr. Hamilton's volume is the same as that of the first part of the "Practical Observations" of which we gave a review in our fifth Number; namely, "to put upon record those deviations from the modes of practice in the department of midwifery at present sanctioned by British and Foreign practitioners, which a long and extensive experience has led him to adopt and recommend." The first Section of the work is "on the Ordinary Management of Women after Delivery." Among other points that have been much discussed, and concerning which there has been great diversity of opinion, is the application of a roller round the abdomen of the patient, very soon after the placenta is expelled or has been removed from the uterus. Dr. H. lays much stress upon the importance and utility of the practice, and provided the roller or bandage is not applied tighter than will give a comfortable feeling of support to the patient, we think it ought never to be omitted. We are quite aware that it may, and has been urged, that many, perhaps the majority of practitioners, adopt no such precaution, or, at least, leave the application of the bandage to the nurse, who applies it in a very ineffectual manner; and that no mischief results, for the patients do well. But, on the other hand, we hear occasionally of women losing their lives after delivery from sudden syncope or unexpected hemorrhage, and we are firmly persuaded that these occasional, and we grant, rare, accidents would still less frequently occur if the bandage were speedily and efficiently applied after the uterus is emptied. We may state, at the same time, that, as far as we can judge, some of the protective advantages urged in favour of the practice by Velpeau* may be very plausible as speculations, but are by no means practically proved. Attention to the nervous system of the patient from the moment of delivery is strongly and properly advised by Dr. Hamilton. "An increased," and we may add, always suspicious, "susceptibility of puerperal women, may be easily

* *Accouchemens*, t. ii. 601, 2d Edit.

listinguished. The action of the heart and arteries is accelerated. The eyes and ears are affected by the slightest degree of light or noise. The patient dreams if she slumbers: when awake she is unquiet and restless." The management of such cases must depend a good deal upon the constitution of the patient, and therefore no positive rules can be laid down to guide the judgment of the practitioner. Dr. Hamilton is of opinion that, in the greater number of cases, chicken-broth, or boiled chicken, perhaps even a moderate proportion of diluted wine, should be recommended to prevent or remove this increased susceptibility of impression, instead of the farinaceous diet which in ordinary cases ought to be enjoined after delivery for the first few days. "Any attempt at suckling the infant ought to be discouraged; for, in certain constitutions, the drain of milk, independent altogether of the fatigue, is apt to occasion very serious nervous affections, such as melancholia, &c." We grant the truth of the fact that is here asserted, but we should be unwilling hastily to prevent a susceptible woman from doing that which is often one of her greatest comforts, both mentally and corporeally, namely, suckling her infant; unless, indeed, we had reason to believe, from trying the experiment, that it ought to be given up. Sleep should, if possible, be procured, and for this purpose opiates, &c. must be prescribed according to the constitution and habit of the individual. In cases of violent palpitation of the heart, Dr. H. has found musk decidedly superior to every other medicine, provided it be properly administered. Forty grains is his smallest dose. This would make the draught costly and will confine it to the rich.

Whatever might have been the faults that were once committed from the fear of properly ventilating the apartment of lying-in women, we of the present day have correct views upon the subject, scarcely keeping them at a moderate temperature: we believe that all British practitioners require cautions to guard them against the mischievous consequences of impure air and excessive heat.* In addition to the ordinary precautions to ensure the personal cleanliness of the patient after delivery, Dr. H. says that, "wherever there is any apparent febrile or irritated state of the system, the whole surface of the person should be carefully bathed, by means of a sponge, with tepid vinegar and water, at least evening and morning, for the first few days, carefully drying one part before bathing another." We are not inclined to doubt the occasional advantages of this practice, but we think its application to "any apparent febrile or irritated state of the system" is too unlimited a recommendation of it, and one that we would not advise a young practitioner to adopt.

The fear entertained by many of arresting the lochial discharge by bathing the external parts after labour with spirituous lotions, has no weight with Dr. H. He advises, as soon as the patient can bear the fatigue, that the external parts should be bathed with warm milk and water, and afterwards, as long as there is any uterine discharge, the same parts to be daily sponged with warm spirits and water; one part of proof

* Oslander's opinions upon this subject are curious, and at variance with those of British practitioners. He lays it down as one of the principal rules for lying-in women, that they should be kept in a moderate but perceptible perspiration, and denies that the sweating system formerly adopted, gave rise, as is now generally thought, to miliary fever, &c. *Handbuch der Entbindungskunst*. Band ii. 197.—Rzv.

spirit to two parts of water. He has never known the lochial discharge arrested by any stimulant or astringent application to the external parts; but he has invariably found that such applications contribute in an essential degree to the restoration, both of the uterus and of the vagina, to their natural healthy condition in the unimpregnated state. For many years past he has annually seen numerous cases of chronic enlargement of the uterus, relaxation of the vagina, &c., which, he firmly believes, were the consequences of the neglect of this simple practice.

It is an established custom to give some aperient medicine the second or third day after delivery; the practice being, of course, modified according to circumstances. Dr. H. is of opinion, that, unless it be unequivocally ascertained that the bowels have been regularly cleared previous to delivery, a dose of castor-oil or aloes, combined if necessary with some narcotic, ought to be given *as soon as the woman has recovered from the shock of labour*. We admit there are cases in which this prompt exhibition of a purgative might be proper, but we can remember more in which we think that the "*as soon as, &c.*" would be a little too soon.*

Laborious Labours. In this section of the work we arrive immediately at a point of great practical importance, which we should have discussed with Dr. Hamilton, when we noticed the first part of his "Observations," if we had not entered so much at length upon other interesting topics to which he there drew our attention. It is Dr. Hamilton's opinion that "when the pains take place, if the dilatation of the os uteri prove tedious, that is, if the continuance of strong pains for six or eight hours do not advance the dilatation to such a degree as to give reason to expect its completion within a few pains, it becomes necessary to interfere lest the patient's health should suffer." And, since the year 1800, the author has advised his pupils to secure the termination of the first stage of labour within twelve or fourteen hours from its actual commencement. And, when treating on laborious labours, "he feels it incumbent on him to declare, that, when the uterine contractions proceed regularly without decided interruption, or when the infant, after the rupture of the membranes, remains in close contact with the passages, the sufferings of the woman should almost never be allowed to continue longer than twenty-four hours, reckoning from the beginning of true labour throes." In combating the opinions and practice of so old and so experienced a practitioner as Dr. Hamilton, we readily take advantage of supporting our own views, by referring to the opposite opinions and practice of those who are most experienced; and, for this purpose, we refer to Dr. Collins's paper, the title of which we have placed at the head of this article. We most perfectly agree with Dr. Collins, that the interference recommended by Dr. Hamilton must, if *generally* adopted, be fraught with danger to the patient. It is decidedly opposed by every teacher and writer of midwifery, with the single exception of Mr. Burns, and we have always thought it our imperative duty to guard pupils against any such practice.

* That doctors differ, nobody denies: may we venture to give additional proofs of this lamentable truth. Oslander (*loc. cit.* 199,) says, "Die Wöchnerin sorge nicht ängstlich für den Stuhlgang und meide in den ersten Tagen alle Laxiere." Again, "Purgantia in puerperis tanquam pestis fugienda," says Baglivi. If the truth lies between these great foreign authorities and our English author, we believe that the latter is nearer the goal which all of them, no doubt, wished to arrive at.—REV.

That Dr. Hamilton and Mr. Burns may offer their interference in dilating the os uteri so dexterously and so judiciously as to inflict no injury upon patients who have the benefit of their personal attendance, we can easily believe; but we oppose as strongly as the courteous freedom of criticism will permit us, the rules laid down by Mr. Burns, and countenanced by Dr. Hamilton, for the guidance of young practitioners, whose impatience in the practice of midwifery, to cut short their patient's labour, that they may end their own, it is always so essentially necessary to guard against. It is true that Dr. Hamilton, by various remarks in both parts of his "Observations," restricts the rules of not allowing the first and second stages of labour to last longer than a limited number of hours; but still the rules remain, and are so broadly and positively laid down, that the exceptions to their application are very likely to be forgotten. We agree entirely with Dr. Collins that the number of hours a patient has been in labour ought to govern our practice much less, if it should have any weight at all, than the previous history of the patient and her actual state and condition at the time of labour. In justice, too, to Dr. Collins, we must add that Dr. Hamilton has not shown sufficient attention to his (Dr. C.'s) record of cases, as they occurred in the Dublin Lying-in Hospital, or he would not have referred to them in support of his opinions. We do not perceive that Dr. Hamilton's reply* at all blunts the force of Dr. Collins's criticism, and still less does it appear to us to show that Dr. C. has either mistaken or misstated his opinions. Dr. Collins is opposed, and very wisely we think, to artificial dilatation of the os uteri, and to any general rule which teaches the propriety of limiting the first stage of labour to any definite number of hours. Dr. Hamilton, on the other hand, quotes Mr. Burns's opinions, and eulogises his practice, and expressly tells us that Mr. B. "has zealously adopted and recommended the very treatment which he has been teaching since the year 1800." Now, Mr. Burns's doctrine is,† "that the first stage of labour ought always to be accomplished within a certain time, varying somewhat according to the constitution of the patient and the degree of pain;" and, to effect this purpose, he advises artificial dilatation of the os uteri, provided the os is lax and dilatable, and that the dilatation is gradually and gently effected during the continuance of a pain. And, again, Mr. Burns says, "that, if the pains be continuing without suspension, or an interval of some hours, and labour be going on all the time, but slowly, it is a good general rule to effect the dilatation of the os uteri within ten or twelve hours at the farthest from the commencement of regular labour."

Dr. MURPHY's paper, on the *Management of the first stage of Labour*, well deserves the attention of practitioners of midwifery. After having sought for proof to determine the validity of the doctrine advocated by Drs. Hamilton and Burns, he comes to the conclusion, "1st. That no proof is given, neither do the records of the largest hospitals in Europe, nor their practice, establish, that the prolongation of the first stage of labour beyond fourteen hours, so impairs the vigour of the uterus as to become dangerous to the mother or child. 2d. That, in cases where the pains are continuing often and decided, while the os tincæ is lax, dila-

* Med. Gazette; June 10, 1837.

† Midwifery; 8th edition, p. 413.

table, and thin, the uterus hardly ever fails, unless from some obstruction in the second stage, in expelling the child with safety to both, and therefore that the practice of hurrying on the first stage of labour is totally unnecessary. 3dly. That, considering the structure of the os tincæ, how readily a derangement in the order of labour may be produced, and its liability to be inflamed from irritation, such a practice might become absolutely mischievous." In these statements we fully concur.

It has been doubted by many practitioners, whether unusual rigidity of the membranes ever retards the progress of a labour. Dr. H.'s experience, at a very early period of his life, convinced him of the fact, and he has taught his pupils, and we think very correctly, "that, if after the os uteri is completely dilated, the membranes continue entire without passing into the vagina, or if, advancing into the vagina, there be a quantity of liquor amnii interposed between them and the head of the infant, (so that the head does not enter the passage,) every labour-throe till the membranes give way is to be regarded as occasioning unnecessary and superfluous suffering." Two cases have occurred to Dr. H. where the funis was naturally so short that it became necessary to tie it, and to cut it within the vagina; consequently its length could not have exceeded six inches, and he has attended many cases where the cord was three and four times convoluted round the neck of the infant, but in none of those cases was there any impediment to delivery. In cases where the labour is protracted from deficient uterine contraction, various drugs have at various times been supposed to have the power of exciting the uterus to more efficient action. But, until lately, all confidence in such remedies was abandoned; and, in cases of ineffective pains, stimulant clysters and aperients were the chief agents relied upon. Dr. Hamilton believes that, while the excitement of the uterine action, by means of irritating clysters, may in some cases expel the infant, it far more frequently exhausts the propelling powers, and renders artificial assistance necessary. "He has never, where he had charge of the patient from the beginning, seen any case where he thought it useful to administer a stimulant enema." Our own experience has taught us to rely with more confidence upon a stimulating enema in cases of inertness of the uterus; and the fact of its ever "exhausting the propelling powers and rendering artificial assistance necessary" is new to us; and, with all due respect, we doubt it. Dr. H. is decidedly opposed to the use of the *secale cornutum*, but "he has only had two opportunities in practice of making a fair trial of this medicine," (p. 82.) He believes that this remedy acts in no other way than by influencing the imagination; and that, in this respect, it possesses no superiority over various other medicines. In cases where the labour-pains have been suspended, by the patient dreading the agony of the last two or three bearing pains, he has prescribed a medicine which he assured the patient would immediately bring back the pains, and hitherto he has invariably succeeded." Although he has used various medicines with this view, as camphor, ammonia, æther, &c. "the pains have generally come on within less than five minutes after the first dose; in many cases, within two minutes." If the progress of a labour is retarded by diminished uterine contraction, (denying, as he does, the efficacy of the ergot,) Dr. H. says, that the means to be adopted must be accommodated to the cause of diminished action. Some very judicious yet brief cautions

is given as to the administration of opiates during labour. "There is a risk of erring in the use of the lancet than in the exhibition of opiates, for there are few cases of protracted labour where bleeding can be injurious." The danger arising from the improper use of opiates both in the later months of pregnancy and during labour cannot be denied. We attended, for example, twenty-two years ago, a lady with her twelfth child. She had always had safe and quick labours. During the last three months of her last pregnancy, she took opiates freely. When the period of labour arrived, the uterus acted very feebly, and, after protracted suffering, the use of the forceps was indicated. She was safely delivered, but she died in a few days from low fever and peritoneal inflammation. Is it unfair to infer that, in this case, the action of the uterus was interfered with by the influence of opium? On the other hand, we do not at all doubt the frequent and striking advantages resulting from the use of the lancet in cases of protracted labour; but we must hint that the author is, in our opinion, a little incautious when he states that there are few cases where bleeding can be injurious; and we may take this opportunity of saying that Dr. Hamilton not unfrequently states his opinions too exclusively. As his authority is great, his practical doctrines and axioms should be deliberately considered, and carefully worded.

In reference to the remarks which are made at page 99 *et seq.* upon the practice in the Dublin Lying-in Hospital, under "the very able superintendence of Dr. Collins and Dr. Kennedy," we must observe that Dr. C. proves, in his "Observations," p. 46, that Dr. Hamilton has not read the work he criticises with sufficient attention, and that, consequently, many of his strictures, (to use a mild term,) are incorrect and undesired. We will give but one example to shew how justly Dr. Collins complains of the criticisms of Dr. Hamilton. After referring to the mentioned case of the Princess Charlotte, Dr. H. observes, (p. 103,) that that melancholy case strongly shews the fallacy of a rule which appears extremely plausible," and which has been scrupulously adopted, according to the author's interpretation of the recorded cases, in the Dublin Lying-in Hospital. The rule to which he alludes is delaying interference "as long as the head advances ever so slowly, (*Dr. Collins*, p. 17)." Now, we find by reference to Dr. C.'s work, that Dr. Hamilton quotes but a part of a sentence; places a full stop when there is only a comma in the work, and thus, no doubt by some momentary but still excusable inadvertence, completely misrepresents the opinions of the writer. Dr. Collins's rule is thus stated: "Let it be carefully recollected that so long as the head advances *ever so slowly*, the patient's pulse continues good, the abdomen free from pain on pressure, and no obstruction to the removal of the urine, interference should not be attempted unless the child is dead."* We cannot wonder that Dr. Collins should ask whether it is possible a more distorted view of his practice could be given than the quotation represents?" In reference to the use of the stethoscope, for the purpose of determining, during labour, whether the child is alive or dead, which Dr. Collins so properly considers a very important improvement in the practice of midwifery, Dr. Hamilton remarks, that "he cannot imagine a case of laborious labour, which had

* Practical Treatise on Midwifery, p. 17.

been much protracted, where the knowledge of the state of the infant can be necessary to regulate the practice." We are much surprised at this opinion, and cannot but think it has been incautiously given. We would ask, has it never happened to Dr. Hamilton to see cases of laborious labour, where he has applied the forceps with some difficulty to himself, and even some hazard to the patient, when, if he could (and before the use of the stethoscope was applied to this point of practice, *he could not*, notwithstanding the precise and dogmatic manner in which some writers on midwifery lay down certain signs, sensations, and symptoms, as indicative of the death of the child,) have ascertained beyond the possibility of doubt that the child was dead, he would without delay have opened the head and thus have avoided the *experimental* use of the forceps. And, again, does it very unfrequently happen in the practice of midwifery, that, from the natural and very laudable horror which every man must feel to open the head of a *possibly* living child, that the sufferings of the mother are allowed to continue, in cases of difficult labours, until she is, at least, in some jeopardy, when, the means being obtained of determining the death of the child, would relieve the practitioner from great responsibility, and the mother from danger, because he would have no motive for delay, but would at once lessen the head by craniotomy. What we know of the use of the stethoscope in such cases leads us to concur entirely in the opinion given by Dr. Collins, that it is a most valuable, and much required addition to our obstetrical knowledge. That it will *always* clearly and positively determine either the life or the death of the fœtus, we do not assert.

We agree with Dr. Hamilton, that Dr. Collins restricts the use of the forceps within too narrow limits. The rules laid down by Dr. C. are *quite unobjectionable* as guides for young and inexperienced accoucheurs; but we can scarcely doubt that he himself would, in certain cases, apply the forceps where the head of the child was wholly or even nearly in the cavity of the pelvis, but where an ear could not be felt. This we have done several times in our own practice, and have succeeded in effecting delivery without any injury either to the mother or the child.*

Dr. H. has had great experience in the induction of premature labour. He was the first to try the effect of separating a portion of the decidua from the cervix uteri, for the purpose of bringing on premature labour without rupturing the membranes; and he shews, by referring to practical results, that many more children have been born alive after this mode of inducing labour, than when the membranes have been previously ruptured.† "With great confidence, therefore, the author can recommend this practice, in all cases where the deficiency of space, in the apertures of the pelvis, does not fall under two inches and a half." Where experience has shown that a woman has borne children of an unusual size, the author has considered that it might be proper to advise

* In our Number for July, 1836, p. 16, we have touched somewhat more at length upon Dr. Collins's opinions upon the use of the forceps.

† Velpéau, p. 413, *Accouchemens*, Ed. 2de, says, "Le décollement des membranes ne suffit point en effet pour mettre en jeu les contractions utérines." We rely, however, upon Dr. Hamilton's statement, and may add, perhaps for the information of M. Velpéau, that the induction of labour by this means depends greatly upon a large portion of the decidua being separated from the cervix.—REV.

this operation when there was no actual deficiency of space. Is not this a rather dangerous licence?

Upon the subject of preternatural labours, Dr. H. says, that the first object in the treatment is to determine in what manner the infant can be adapted to the passages with the greatest facility to the parent. The former, and even the prevailing, doctrine now is, that the fore part of the *fœtus* should be turned to the back of the mother. Dr. H., however, agrees with Baudelocque, that, "in every case where the feet are brought down, the toes should, in the progress of extraction, be turned into such a position that the belly, the breast, and the face, shall be made to pass in succession along the nearer sacro-iliac synchondrosis. After the arms are disengaged, the face can be readily turned into the hollow of the sacrum."

The early interference recommended by Dr. Hamilton in "footling cases" is opposed by Dr. Collins, and, as far as we know, by all modern writers and teachers; and we must add, that mature reflection and ample experience convince us that it is unnecessary, and, as far as the child is concerned, unsafe. Once more we must defend Denman's opinions upon the subject of spontaneous evolution of the *fœtus*. Whoever has been "misled," has erred from mistaking the opinions of Denman. Velpeau,* Blundell,† Gooch,‡ &c., and we infer Dr. Hamilton also, from his having, forty years ago, "raised his warning voice against practitioners being misled by the opinions of Dr. Denman upon this subject," must have read Dr. D.'s observations with too little attention; for a reference to the first and second papers he published upon spontaneous evolution in 1785,§—to the first edition of his *Midwifery*, in 1795,—and the seventh edition published by Waller, will show that he went no further than to state that the knowledge of the occasional occurrence of spontaneous evolution might be some relief to the practitioner's mind, and prevent him from having recourse to hazardous operations, in those cases where turning either cannot be effected without great danger to the patient, or where it is altogether impracticable. But, says Dr. D., in the 7th Edition of his *Midwifery*, "the knowledge of this fact (spontaneous evolution), however unquestionably proved, does not free us from the necessity and propriety of turning children presenting with the superior extremities, in every case in which that operation can be performed with safety to the mother, or give us a better chance of saving the child." And yet, not to mention Velpeau, who has doubtless quoted Denman's opinions at second-hand, Blundell says,|| that Dr. Denman advised "that in arm presentations we should *always* confide the delivery to the natural efforts, abstaining from the introduction of the hand into the uterus;" Gooch,¶ that Dr. D. published his cases of spontaneous evolution, "together with the inference that arm presentations may be *entirely* left to nature." Such mistakes are, no doubt, accidental, but they are not the less extraordinary.

* *Accouchemens*, t. 2, 275.

† *Practice of Obstetrics*, p. 384.

‡ *Midwifery*, by Skinner, p. 238.

§ *London Medical Journal*, vol. v. By Simmons.

|| *Loc. cit.*

¶ *Loc. cit.*, as reported by Skinner.

We must be brief in our comments upon Dr. Hamilton's opinions upon the subject of Uterine Hemorrhage. Upon many points he entertains peculiar opinions, and upon some important practical ones he differs from the best authorities. He remarks, that Professor Davis errs in supposing that Puzos recommended the rupture of the membranes, where the placenta is attached to the neck or orifice of the uterus. Puzos expressly says (p. 334,) that puncturing the membranes can only be useful in the cases he described in p. 327, viz. "Le décollement de quelque portion du placenta d'avec le fond de la matrice." In our 6th Number we deprecated the practice advised by Dr. Davis; and, considering the danger of it in every point of view, we did not perhaps express our dissent from such a mode of treating "unavoidable hemorrhage" with sufficient decision. Dr. Hamilton thinks the use of the plug for the purpose of arresting hemorrhage in the latter months of pregnancy, whether it be unavoidable or accidental, "to be most hazardous." His great objection to the practice is, that, from the condition of the uterus after the seventh month of pregnancy, the blood discharged by the separation of the placenta, if prevented from passing per vaginam, may accumulate within the cavity of the uterus and prove fatal." True, such an occurrence "may" happen, but that it is very improbable is granted by most if not all authorities, and the possibility of it is denied by many: for example, Dewees,* La Chapelle,† and Legouais,‡ who states that no such accident ever occurred at La Maternité, where it is well known the field of observation is more varied and extensive than in any other institution. We could easily accumulate evidence in support of our own belief; we could just as easily shew why these often talked of and dreaded internal hemorrhages during pregnancy are much too rare to justify the practitioner in abandoning the use of the plug in very many cases of flooding during the latter months of pregnancy; and most especially in those where from rigidity of the os and cervix uteri, which we really cannot consider with Dr. H. a "bug-bear," manual interference would be very improper and very hazardous. Dr. Hamilton also disapproves of rupturing the membranes in cases of hemorrhage; but then his experience of the practice is very limited, and cannot fairly be opposed to that of Rigby, Merriman, and others, who rely upon it; for, "during the last thirty years, he has only met with two cases where he adopted it." Gooch says|| that, in his practice, hemorrhage never continues after the rupture of the membranes. Rigby supports the practice by more than sixty cases.¶ We quite coincide with the author in opinion that the recorded cases of success from transfusion of blood in desperate cases of hemorrhage are too few to warrant any general inferences.

Convulsions during Pregnancy, and Labour. In common with perhaps all modern practitioners, Dr. H. strongly recommends free bleeding in most cases of this formidable disease. The extent, however, to which he carries depletion appears to us alarming. "He never directs less than fifty ounces by weight to be drawn at first, and if there be not a decided

* Midwifery, p. 422, 1st Edition.—London.

† Pratique des Accouchemens, t. ii. p. 352.

‡ Dict. des Sc. Med., t. liv., p. 323.

§ Midwifery; 8th Edition, p. 316.

|| Loc. cit., 257.

¶ On Uterine Hemorrhage.

improvement within the hour, he advises the same quantity to be again subtracted." "Experience, too, has taught" Dr. Hamilton a lesson which we certainly have not obtained, and which appears to us to be quite repugnant to all that is known upon the subject of the different effects of large bleedings in different constitutions: viz. "in directing the first bleeding, to disregard peculiarity of constitution, for the most delicate persons require the same quantity to be subtracted at first as the most robust." We confess it would have been particularly interesting to us if Dr. Hamilton had stated, from his "experience," not merely that in the "most delicate persons" puerperal convulsions may be cured by such very large bleedings, but that they subsequently rallied from the shock the practice must have inflicted upon them; because, if, as we strongly fear, such a state of future feebleness and broken health would be produced in the "most delicate" women by so free a use of the lancet, we certainly should hesitate to adopt the practice, even upon the authority of Dr. Hamilton. Two cases occurred to us in early life, which we will briefly mention. Two young and delicate women were attacked by severe puerperal convulsions quickly after delivery of their first children. We were then fresh from the schools, and more likely perhaps to push the doctrines of our masters to an extreme, than to deviate from them. From each of these patients we took upwards of thirty ounces of blood, being guided then in the use of the lancet, as our experience has subsequently taught us we ought not to have been, by the intensity of the convulsive struggles. Both these patients recovered from the attack, or which they were thus treated; but they neither of them enjoyed good health afterwards. Their constitutions were broken; their minds were greatly depressed; and the conviction of having carried depletion too far, of not having duly considered the power of the patients to bear it, has often disturbed us, and still the subject excites in our minds much regret. We cannot but fully concur with the opinion of Dr. Collins, 'that the removal of *one hundred ounces* of blood from most women in the course of an *hour* is unquestionably much calculated to injure the future health;' and we sincerely hope, in order to prevent even the assumed necessity for such treatment, that the experience of others may confirm the confidence which Dr. C. has in a mode of practice which we believe originated with him; viz. that of keeping the patient under the nauseating influence of tartar emetic *after* the first bleeding, and free purging with calomel and jalap.

The last two sections of Dr. Hamilton's work contain the author's opinions upon the subjects of Rupture of the Uterus during pregnancy and labour. In the Appendix are contained "Cases of Cicatrix in the Vagina in consequence of Laborious Labour;" "An account of a proposed Substitute for the Cæsarian Operation;" Cases of Convulsions referred to in the Work, and Letters relating to the action of the foetal heart before birth.

II. We perfectly agree with Mr. Ingleby, that an extensive collection of faithfully recorded and well-authenticated cases affords the best means of advancing the progress of our knowledge in medicine; as, by arranging, classifying, and comparing the facts observed, we are enabled to deduce general facts or general principles. The great objection we have

to many such records of cases is the dry daily detail of unimportant circumstances which writers frequently enter into, and which very few readers have patience to peruse. Mr. Ingleby eschews this fault. His cases are succinctly stated, and only those prominent features of them are noticed from which he has derived his opinions.

The first section of the work is on the subject of Puerperal Convulsions. Mr. Ingleby very correctly remarks, that, allowing for complications and variations of constitution, the more important convulsions of the puerperal state may be referred to two principal and opposite conditions of the system: either an excited or turgid state of the vessels of the brain, (often promoted by improper diet and a neglected state of the bowels during gestation,) or by *loss of blood*, as after a dangerous hemorrhage. There is also a third state, which seems more immediately dependent upon excessive sensibility of the uterine fibres, since it generally happens under an irregular and highly painful action of the uterus during its dilatation. It is curious, but it is true, that the remark of Denman, Collins, &c. is well founded; namely, that, "where the presentation is preternatural, there is little cause to dread an attack" of convulsions. Dugès, Velpeau, and others, observe that serous plethora, or the anasarca which often accompanies a first pregnancy, especially if the œdema extends to the face and upper extremities, predisposes to eclampsia. Oslander also considers a tumid condition of the hands and face as premonitory of the attack. Mr. Ingleby has seen several cases of puerperal convulsions which were succeeded by puerperal mania, and he thinks the transition might probably be the result of the large bleedings which were necessary to subdue the primary disease.

"In the treatment of sthenic convulsions, having cut short the paroxysm, our grand object should be to remove the coma, and guard against the paroxysm recurring. There are two leading indications of treatment: first, allaying vascular excitement and relieving turgidity of the blood-vessels of the brain; and, secondly, in the failure of general treatment, lessening the volume of the uterus, either by the discharge of the liquor amnii, where the case occurs antecedent to the sixth or seventh month of pregnancy, or by the entire evacuation of its contents when subsequent to those periods. As respects general treatment, *active* and *early* depletion is indispensable. Bleeding, which is borne exceedingly well, must be enforced before effusion has taken place or a permanent impression has been made upon the brain." (P. 19.)

But, adds Mr. I., we cannot define the amount of blood to be taken away; since this must correspond with the urgency of the case and the effects produced. He does not, however, advocate the extreme amount of depletion recommended by Dr. Hamilton.

"Whether general bleeding be admissible when the fits have ceased, and the comatose state has ensued, is a nice but important point to determine. Should it be undertaken, the greatest precaution must be exercised, and its effects on the circulation narrowly observed whilst the blood is flowing: it is greatly, however, to be feared that false pathological views respecting serous plethora have much restricted the depleting system. If doubt exist, it is better to practise a moderate bleeding than to neglect it; but, in protracted states of coma, and in convulsions which arise after delivery, cupping is not only the safest, but usually the most effectual method of abstracting blood." (P. 23.)

Active purging stands next in importance to bleeding. When deglutition is impeded, calomel and croton-oil are almost the only purgatives that can be given by the mouth. Purgative injections should also be employed.

"In convulsions which occur prior to the dilatation of the uterus, or with a tendency to abdominal inflammation, the tartar emetic, in quarter or half grain doses, to produce nausea, highly extolled by Collins, appears to be a most beneficial agent." (P. 23.)

In general, medicines which stimulate the uterus are inadmissible. The ergot of rye has been advised by many practitioners; and the author is not aware, nor are we, that any valid objection can be urged against its use, if the uterus and external parts are sufficiently relaxed. But, if they are not, "no practice short of the introduction of the hand could be more hurtful." But, if the case did not admit of delay, the use of the forceps would be of course preferred, presuming the circumstances were favorable for their application. Of the action of opium in these states, Mr. Ingleby has no experience, and the testimony of authors respecting it is most conflicting. We believe that opium is rarely, if ever, a proper or a safe remedy before bleeding; and that, even after depletion, it requires great discrimination, and a perfect knowledge of the previous history of the patient, as well as strict attention to the state of the brain and circulation, to determine when it is likely to be beneficial. We have no doubt that Velpeau is right in the remark that opium merits neither all the good nor all the ill that has been attributed to its use in this disease. Shaving the head, mustard cataplasms to the legs, cold to the scalp, &c., are well known and very useful auxiliaries. Dr. Graves, in his remarks on convulsive diseases, advises* that the stream of water should be small, not poured from a great height, and be discontinued the moment the fit ceases, to be again renewed on the appearance of another paroxysm. Great care should be exercised in the application of blisters. Mr. Ingleby has seen them productive of much mischief.

When general treatment fails to subdue the violence of the paroxysm, or to prevent its recurrence, then arises the question of delivery. Upon this subject Mr. Ingleby first takes a brief view of the opinions of the best authorities and then states his own.

"The want of success in delivering generally arises from one of two causes; the first—delivering too early, before the uterine orifice has undergone sufficient relaxation; the second—postponing the delivery until effusion has taken place, or a fatal impression has been made upon the brain. Previous to delivery being attempted, sufficient relaxation of the uterus must therefore be obtained by bleeding or emetic medicines in nauseating doses, purgative enemata, and perhaps the application of belladonna to its orifice, otherwise we incur the risk either of an apoplectic seizure, or a laceration of the uterus or vagina. This precaution has less regard to the degree of dilatation of the os uteri, (for the orifice is not unfrequently more or less open for many days before labour,) than to its state of softness; and if a decided impression be made upon it during the paroxysm, the sooner delivery is accomplished the better. Although the uterine office often becomes relaxed earlier than we might *a priori* infer, a moderate degree of resistance is, in every delivery, both to be expected and desired: but a forcible entry into the uterus must be discountenanced by every rational practitioner." (P. 36.)

The mode in which delivery is to be effected must depend on circumstances. If the membranes are entire, the os uteri dilated or dilatable, the vagina relaxed, and the head of the child above the brim, turning should be had recourse to. If the head is low enough in the cavity of the pelvis, the forceps should be used. In cases of that degree of pelvic

* Dublin Journ. of Medical Science, No. II.

contraction in which the forceps could not be used with any prospect of success, the practitioner may be compelled to use the perforator. Thirty-five cases are briefly detailed, and Mr. I. adds, that, since the chapter was written, he has had additional proof of the efficacy of the tartarized antimony in the sthenic form of eclampsia, the attack taking place shortly after delivery. "The agency of this medicine (says Mr. I.) is of singular value; for, whilst it lowers inordinate action, it does not produce those distressing secondary effects which follow large bleedings." (P. 61.)

The next section treats on Malposition of the Uterus, Ovaria, Bladder, and Urethra, both in the impregnated and unimpregnated state, in connexion with retention of urine. The most important malposition to which the womb is exposed consists in its retroversion, the danger of which has been very differently estimated by different authorities.* The few first cases which occurred to Mr. Ingleby were simple in their character, and yielded to the regular employment of the catheter. In one case, attended with severe pain, which Mr. I. saw six hours after the malposition (occasioned suddenly by the restraint of company,) had taken place, although the pressure upon the urethra impeded the use of the catheter, the womb rectified its position almost instantly after the bladder was emptied. His next cases were far from manageable, and were perplexing, both on account of the development of the uterus, and the severity of the symptoms. The catheter was a palliative remedy; yet these cases ultimately did well. In one case reported to Mr. I., the event was fatal; but this "was entirely owing to the patient obstinately resisting the use of the catheter." It has been denied on very recent authority,† that a real retroversion can take place after the fourth month of gestation, and it is assumed by the writer that the instances reported by Merriman were either examples of extra-uterine gestation or posterior obliquity of the womb. But a case which forms a prominent part of Mr. I.'s essay seems to refute this opinion, and to confirm the facts advanced by Merriman.

In the treatment of Retroversio Uteri, the bladder having been relieved, attention should be immediately paid to the state of the rectum, "the degree of pressure made upon it has been known to resist even the passage of an injection." The catheter, too, should be *frequently* employed; its introduction every fourth hour is preferable to the plan of retaining the instrument in the bladder. As a marked instance of the advantage of frequently emptying the bladder, the following case is given.

"I was desired by a brother practitioner to visit a woman in consequence of the uterus remaining retroverted at the fourth month of pregnancy, notwithstanding the daily introduction of the catheter for many days. The fundus had descended almost to the anus, and the os uteri was just above the brim. At my recommendation the urine was now drawn off four times daily, instead of once; and on the third day the organ was restored to the natural position." (P. 67.)

Some cases, though few in number, will not yield to the catheter, and

* Osiander says, that Retroversion of the Uterus occurs as frequently in women who are not pregnant as in those who are, but that the symptoms of this malposition are much more severe in the latter. *Handbuch der Entbindungskunst Zweite Auflage*. B. 3. 114. Mr. Burns's section on this subject is excellent.—REV.

† *Traité Pratique*, &c.; by Boivin and Duges, p. 73.

demand the rectification of the uterus by the hand or fingers. In determining to rectify this malposition, we must be influenced not only by the duration and severity of the symptoms, the period of gestation, and the supposed dimensions of the pelvis; but also by the actual size of the uterus. The mode in which the uterus is lodged in the pelvis must also be taken into account. "It may be slightly confined, literally impacted, or it may lie comparatively unrestrained." Without advocating the expediency of the practice as a general rule, Mr. I. is satisfied that the position of the retroverted uterus may be rectified with less difficulty and danger than is usually supposed.

"From a rude attempt very much may be feared; and when gentleness and skill have failed, violence will seldom succeed. A little perseverance, however, may be necessary. Having ascertained the nature of the case, and determined upon the propriety of restoring the uterus, the bladder being emptied, an attempt to raise the fundus above the brim should be made with great care, and in the proper axis, the patient resting on her hands and knees. Bleeding and the hot bath may be premised if the resistance is considerable. By placing two fingers of the left hand in the rectum against the fundus, and two fingers of the right hand behind the symphysis pubis upon the cervix, the compound action thus obtained will usually prove successful." (P. 69.)

Dr. John Clarke* believes that a proper catheter may always be introduced. Professor Burns, too, observes, "I cannot conceive any case where a gum elastic catheter could not be introduced." But Mr. I. is correct in saying that persons of undoubted skill have sometimes failed in their attempts to reach the bladder.

"Assuming, therefore, that serious difficulties in the treatment of retroversion every now and then arise, it may be laid down, that, should the continued pressure occasion inflammation of the bladder, or render the introduction of a catheter impracticable; or should a formidable obstruction arise to the passage of the fæces; the evacuation of the liquor amnii through the os uteri, or, if this is not advisable, the puncture of the inferior part of the body of the uterus through the vagina (not the rectum,) and the immediate restoration of the uterus, will be essential to the preservation of life." (P. 74.)

A case in point is given which was attended by Mr. Baynham and the author.

"The situation of his patient, who was six months advanced in pregnancy, was in every respect desperate; and as it was impracticable to pass any instrument through the os uteri, as a last resource the uterus was punctured per rectum, the liquor amnii drawn away, and rectification then speedily effected. Recovery most fortunately took place."† (P. 75.)

For further observations on the subject of retroversion and other malpositions of the uterus, ovary, bladder, and urethra, and for some interesting cases of obstructions in the soft parts to the progress of labour, we must refer to the work.

The fourth section treats on the Induction of Premature Labour in cases of organic disease. It is well known that in cases of pelvic deformity, the induction of premature labour at the proper period not only gives us a fair chance of saving the life of the child, which must inevitably be sacrificed if the mother were allowed to go to the full term of preg-

* Practical Essays, p. 7.

† For the details of this very interesting case, see *Edin. Med. and Surg. Journal*, April 1830.

nancy, but that it has also the effect of greatly mitigating the sufferings of the mother. Dr. Merriman is of opinion that the induction of premature labour by art ought to be strictly confined to those melancholy cases of distorted pelvis only for which it was originally recommended.* Dr. Ashwell† has recently proposed an extension of the practice to cases in which tumours have formed within the uterus or in connexion with enlargements of the ovary, and also to extraneous growths in the vicinity of the uterus, which are liable to inflame during gestation, or are calculated to offer a formidable obstacle to parturition. Confessing that the cases mentioned in Dr. Ashwell's paper are deeply interesting and important, yet Mr. Ingleby thinks it questionable whether they afford sufficient data to establish as a general principle the adoption of the proposed measure in similar cases; and, for the purpose of proving that his doubts upon this point are well founded, he enters at some length into a critical enquiry of Dr. Ashwell's views. He admits that cases have arisen in which the practitioner was justified in inducing premature labour, which the strict rules laid down by Merriman would have prohibited; but he doubts, both from experience and reflection, whether Dr. Ashwell has sufficiently restricted and defended the principle he so ably and zealously advocates.

"Under any circumstances, it will be most important to consider whether the disease is likely to prove fatal; for, in sanctioning the operation, we must not only believe that such a result will happen if gestation is suffered to continue, but ought to entertain a strong conviction that the evacuation of the uterus is essential to the removal or the marked mitigation of the disease. As a matter of conscience, the concurrent testimony of several eminent midwifery practitioners, in its justification should previously be obtained." (P. 172.)

The fifth section on Laceration of the Uterus and Vagina contains many good practical remarks, and the opinions entertained by Mr. I. are illustrated by nine cases. We may take another opportunity of noticing this subject soon.

Inversion of the Uterus. On two occasions Mr. Ingleby has traced the occurrence of this very serious accident to unskilfulness in separating the adherent placenta. He is acquainted also with two other cases where the inversion occurred spontaneously directly on the birth of the child, but in both of them the practitioner instantly returned the organ without reference to the placenta. An instance is given of a form of inversion, which, we believe, has not been noticed before.

"I was compelled, in conjunction with another practitioner, to apply the forceps under the disadvantage of uterine inertia. After the delivery of the child there was no tendency to expel the placenta; but a portion of the mass having separated, a slight effort was made with the funis. The placenta descended considerably beyond the os internum, together with a quantity of the uterus, apparently the whole of its right side, the left not being sensibly depressed. Flooding ensued. At the moment we were rather perplexed, but the nature of the displacement became evident, and the inverted part was immediately returned, together with the placenta. The adherent portion of the mass was then separated without delay, and the case treated in the usual manner." (P. 222.)

"In treating a case of inversion, with the placenta still adhering, the rules laid down by Merriman are the best which can be followed, namely, to reverse the organ, without reference to the placenta: and in case this should be found impracticable, to peel

* Med. Chir. Trans., vol. iii, p. 142.

† Guy's Hospital Reports. Nos. 1 and 2.

may the placenta, using every precaution against the occurrence of hemorrhage, and so to return the part without delay." (P. 224.)

It is admitted by all authorities, that, the sooner we attempt to reduce the inverted uterus to its natural position, the more likely we are to succeed. Mr. Ingleby, however, very properly guards practitioners against a very common fault of being influenced too implicitly by general opinion and of despairing altogether of success, and leaving the patient to her fate when the uterus has been long inverted.* Cases are referred to which reduction of the inverted uterus was effected many hours, and even several weeks, (*Med. Gaz.* vol. vii., 783,) after the inversion had happened. Mr. Ingleby mentions a case in which he himself succeeded in replacing the uterus eight days after inversion had taken place. It would always be remembered that, however desirable it is to restore the inverted uterus as soon as possible, the patient will be exposed to more danger by violent and obstinate attempts at reduction, than by leaving the uterus inverted. Gardien† says, that reduction is sometimes easier after several days, than when only a few hours have elapsed. When the inverted uterus is not immediately restored, it generally happens that, in a few hours, its tissue becomes engorged with blood and is thickened; at the cervix contracts and presses upon the part of the organ it embraces, so as to produce inflammation. In this state, reduction is frequently impossible, and persevering attempts are hazardous. We should wait, using in the mean time proper means to reduce the congestion and inflammation of the inverted organ, as bleeding, gentle pressure, warm fomentations, &c.; and, in all probability, by following this plan the parietes of the uterus will become softer and less sensible, and the cervix will offer less resistance to moderate and safe efforts at reduction. Mr. Ingleby touches but briefly upon part of the subject which is of importance; namely, the propriety of extirpating the uterus, when it is inverted and cannot be replaced. We perfectly agree with Mr. Burns,‡ that at the trial of the extirpation of the uterus is to be preferred to leaving the patient to certain death, but we believe with Murat§ that, unless necrosis or sloughing of the uterus takes place, this formidable operation is not indicated. It is worthy of remembrance, that Dewees|| mentions a case of inverted uterus, in which reduction was impossible, from a stricture of the contracted mouth of the organ. The patient was apparently in a dying state. It occurred to him that he might take off the stricture by inverting the uterus completely. In this attempt he succeeded, and the woman was almost instantly relieved from the anxiety and faintness she had before experienced. No hope of recovery, however, was entertained; but she *did* recover, without another alarming or troublesome symptom.

In the last section, the Signs and Symptoms of Pregnancy are generally described; their obscure and deceptive characters; their compli-

* Upon this very important practical subject we refer our readers to Gardien, vol. i. 137; and *Dict. des Sc. Med.*, t. xlvii., 465. In both works several cases are related where long standing inversion of the uterus was restored by art, and some in which were effected the spontaneous reduction.—*Rav.*

† *Loc. cit.* 313.

‡ *Midwifery*, 8th Ed. 521.

§ *Dict. des Sc. Med.*, t. xlvii., 495.

|| *Midwifery*, p. 539.

cation with disease; and the signs which denote the extinction of life in the fœtus: but this subject we have discussed so much at length in another part of the present Number, that we must pass it here without further notice.

It is not from mere compliment, but from a sense of justice to the author, that we conclude our notice of his work by saying that it is very creditable to his industry and judgment. His experience upon the subjects he discusses is evidently great; and his practical inferences are cautiously drawn, and generally supported by a reference to the best authorities.

ART. VII.

Untersuchungen zur Physiologie und Pathologie. Von Dr. FRIEDRICH NASSE und Dr. HERMANN NASSE. Erstes, Zweites und drittes Heft. — Bonn, 1835-6.

Physiological and Pathological Researches. By Dr. FREDERICK NASSE and Dr. HERMANN NASSE. Parts I. II. and III. — Bonn, 1835-6. 8vo. pp. 486.

THE work whose unpretending title we have just transcribed, is one of a class not uncommon on the continent, but sufficiently rare in this country. It may perhaps be difficult to account for the fact, (that it is a fact few will be disposed to deny,) that, though Britain has contributed her full share to the advance of the science of physiology, this share has been furnished by a small number of individuals whose discoveries have earned for them a lasting reputation; and that, in proportion to the number of well-educated practitioners which she possesses, very few are engaged in the pursuit of that most important and interesting branch of enquiry. Such a work as we have now before us, consisting of original researches of great value on many of the most obscure and complicated questions in the science, would indeed be a rarity in this country; for, though many valuable papers are scattered through our various Transactions and Journals, we know of few who make the pursuit of experimental physiology the employment even of their leisure hours, much less the business of their lives. We shall therefore devote more than ordinary space to the analysis of the Essays now before us, partly on account of their intrinsic value, and the improbability of their being presented to our readers under any other form; and partly in the hope of exciting some of our brethren in this country to a similar course of practical research.

The two Drs. Nasse of Bonn (father and son,) are already favorably known as experimental physiologists; and these researches will, we doubt not, considerably increase their reputation. The authors state it to be their intention to publish three or four numbers of these essays every year, chiefly on physiological questions, but with an occasional glance at pathological subjects. Of all those which have already appeared, it is our intention to present our readers with a full account; but, on the present occasion, our limits compel us to restrict our attention to two of the most important, by the oldest of the authors, Dr. Frederick Nasse.

I. Observations and Experiments on the Functions of the Spinal Cord.

The essay, of which we now proceed to give an account, is contained in the Second Part, and is on one of the most interesting subjects which have recently engaged the attention of physiologists. Although rather calculated to unsettle than to confirm opinions usually regarded, in this country at least, as well established, we cannot hesitate to allow considerable weight to the facts and arguments adduced by the author.

Although the views of Sir C. Bell on the separation of the motor and sensitive tracts of the spinal cord are very generally if not universally received in Britain, the number of experimental physiologists on the continent who have advocated or denied this separation, is pretty equally balanced. We shall not enter into the discussion of this important question for the present, as our object is to lay the facts and observations of the author before our readers, rather than the expression of our own opinions; but it must, we think, be admitted that a distinct separation of function, as relates to the fasciculi of the spinal cord, has not yet been established in such a manner as to preclude all further investigation.

The facts obtained by the observation of disease are not regarded by Dr. Nasse as favorable to the doctrine, that the anterior fasciculi are exclusively motive, and the posterior solely concerned in sensation. He mentions several cases in which compression or degeneration of the posterior part of the cord was unaccompanied by corresponding loss of sensation, whilst a similar change affecting the anterior fasciculi had destroyed the power of motion: some of these fell under his own notice; others are recorded by different authors* to whom he refers. He then goes on to observe, that with the exception of one not very accurately detailed, we have no well-authenticated cases of loss of sensibility and retention of the power of motion, coexisting with a morbid state of the posterior and natural state of the anterior fasciculi, although this state is more frequent than the reverse condition; and he gives the following as his conclusions from pathological phenomena.

"1. In the majority of cases in which lesion of motion had been present, degeneration of the anterior fasciculi of the cord was discovered.

"2. Sensation did not remain wholly undisturbed where the effects of degeneration or pressure had been limited to the anterior fasciculi. (A remarkable instance of complete loss of sensibility and of motion, resulting from the pressure of a tumour on the anterior column only, is related by Velpeau, Archives Générales de Médecine, Janv. 1835.)

"3. It has also occurred that, in complete paraplegia, the degeneration has been limited to the posterior fasciculi.

"4. There are cases on record in which very slight morbid change was found in one anterior fasciculus, while the other close to it was found considerably degenerated; yet the power of motion had been lost on the side in which the slight change occurred."

Experiments on animals furnish more accurate and satisfactory information on matters purely physiological† than on those which have also a

* Fodera, Journal Complémentaire, Cahier 80. p. 269; Serres, Anatomie comparée du Cerveau, tom. ii. p. 221; Abercrombie on Diseases of the Brain and Spinal Cord, 3d Ed., pp. 362, 365, &c.

† We presume that the terms *mental* and *physiological* are used, by our author, as synonymous with the *sensorial* and *nervous* of Dr. W. Philip.—Rev.

mental relation; but they may be used, under certain restrictions, to illustrate the mental relations of the spinal cord. We shall state Dr. Nasse's views on this subject nearly in his own words, considering them highly deserving of attention.

"If we examine the relations which the anterior and posterior fasciculi of the cord bear to sensation, it would appear, first, that the posterior fasciculi are peculiarly sensible; and next, that the anterior fasciculi are evidently less sensible than the posterior. These points deserve further consideration.

"In making experiments on animals to ascertain the relations which the anterior and posterior fasciculi of the spinal cord bear to sensation, there is one source of error which appears equally unavoidable and irremediable. The gradations of sensibility are almost imperceptible; the shades are so delicately and so intimately blended that every attempt to determine the line of transition proves inadequate. There is a great deal of truth in an expression of Calmeil's—that it is much easier to appreciate a hemiparalysis of motion than a hemiparalysis of sensation. If the anterior fasciculi of the cord possess sensibility, but only in a slight degree, the mere opening of the vertebral canal and laying bare the cord, must cause such a degree of pain as would weaken or destroy the manifestations of sensibility in the anterior fasciculi. This has not been sufficiently attended to by experimenters. Again, the practice of first irritating the posterior fasciculi, and afterwards the anterior, must have had considerable effect in producing the same alteration. It is plain that, in this way, the relations which the anterior fasciculi bear to sensation must be greatly obscured; yet, with the exception of some few experiments, this has been the order of proceeding generally adopted.

"Another circumstance, weakening the inference from the experiments, is the very occurrence of violent convulsions in those muscles which are under the influence of the anterior fasciculi. Such violent muscular motions must obstruct, more or less, the manifestations of pain, when the anterior fasciculi are irritated. The hind legs of a rabbit being enveloped in such a way as to prevent motion, the spinal cord laid bare, and the anterior fasciculi irritated with a blunt needle, a shrinking of the parts above and below the irritated point was noticed, exactly resembling that which results from irritation of the posterior fasciculi; and in two of the cases in which this phenomenon did not occur, the laying bare of the cord had caused a more violent degree of hemorrhage than usual, and the manifestations of sensibility, even in the posterior fasciculi, were feebly expressed."

In the opinion of Dr. Nasse, therefore, experiments on the lower animals cannot be held as exclusively establishing the relations which the fasciculi of the cord bear to sensibility; and, in examining how far their connexion with muscular action has been established, he points out many circumstances which may prejudice the accuracy of the results usually relied on.

"In the first place, voluntary muscular motions should be distinguished from mere manifestations of irritability. Again, the laying bare of the cord must produce more or less disturbance of the motive faculty, and must particularly affect any capability of motion possessed by the posterior fasciculi. A rabbit, of the variety with long silky hair, was observed to become paralysed in its hind legs after this operation, although every precaution was taken to avoid shattering of the bones or disturbance of the nervous matter. The rough way, also, in which the anterior fasciculi are divided in most experiments cannot fail, in some degree, to stretch or press the posterior fasciculi, so as to affect the relations which the latter may bear to voluntary motion.

"A circumstance which also tends to throw additional obscurity on this subject is the difference of opinion as to the exact nature of the phenomena observed after division of the posterior fasciculi in the parts dependent on them for nervous influence. Some assert that this operation completely abolishes all voluntary power; others, on the contrary, state that, under the same circumstances, they

have witnessed motions of these parts which had all the appearance of being voluntary. In a case of this description, a single well-established positive result is worth a host of negative ones. The results obtained by Rolando, Bellingeri, and Seubert on this point, are sufficiently known. In Calmeil's experiments on lambs, irritation of one of the posterior fasciculi produced, in almost every instance, motions of the corresponding extremity; and, after division of the anterior fasciculi, irritation of one of the hind legs, or its nerves, excited motions in both. There can be no doubt that the anterior fasciculi have a relation to voluntary motion; but it seems also probable that they possess some share of sensibility.

"If we sum up all the foregoing facts, derived as well from cases of disease as from experiments on animals, it appears to result that in man, and in the animals which approximate him, a division of the functions of the anterior and posterior fasciculi of the spinal cord is not yet satisfactorily proved."

We have given these statements of our author without comment; but, in order that they may not bring us back to the state of "glorious uncertainty" which so lately prevailed as to the functions of the nervous system, we beg to subjoin a few observations.

1. Although we agree with Dr. Nasse that there is still some difficulty as to the parts of the spinal cord appropriated to sensation and to voluntary motion, (which, indeed, is sufficiently obvious when we attend to the ascertained power of the spinal accessory nerve in exciting motion, and to its obvious origin *behind* the ligamentum denticulatum,) yet, when we consider that the result, both of experiments and of pathological observations on the *nerves of the face and eye*, has decidedly established the separate endowment of these nerves, as stated by Bell, we can scarcely doubt that a similar difference of endowment exists in the constituent filaments, both of the spinal nerves and of the spinal cord, however difficult it may be, in the more complex structure of these parts, to distinguish the precise filaments employed for their different purposes.

2. Dr. Nasse does not seem to be aware of the modification which the doctrine of Bell has undergone in consequence of his dissections, the results of which are recorded in the Philosophical Transactions for 1834 and 1835, which convinced him that the posterior roots of the spinal nerves arise from a portion of the *lateral* columns of the spinal cord descending from the crura cerebri, and decussating in the medulla oblongata;—not from the *posterior* columns which descend by the corpora restiformia from the cerebellum, and do not decussate.* This being so, we at once perceive that much disease of the posterior portion of the cord may be unattended with loss of sensation in the parts below.

3. In the preceding and some of the following statements, we think Dr. N. has not duly reflected on the important principles which we think fully established in pathology, and always to be kept in mind in attempting to draw physiological inferences from morbid appearances in the nervous system; viz. that nervous matter may undergo great changes of form, and even of apparent structure, if gradually effected, without losing vital power; and that the influence of disease or injury more rapidly affecting the nervous matter may extend to the alteration or suspension of the functions of parts connected with them, which have not themselves undergone any obvious disorganization.

4. In this paper two questions are involved, which ought to have been

* Bell on the Nerves, 3d Edition, pp. 318, 19.

kept distinct. One respects the functions of the anterior and posterior filaments of the spinal nerves; the other respects the functions of the anterior and posterior fasciculi of the cord. With respect to the first, it may be considered fully established that irritation of the posterior filaments of nerves, when separated from the cord, never produces motion; whereas, irritation of the anterior filaments, similarly separated, invariably produces motion; and that if, of one hind leg of a frog, all the anterior filaments of the nerves be divided, of the other hind leg all the posterior filaments, the first has lost all power of motion, the latter all sense of feeling. It follows, from these experiments of Müller on frogs, (animals which long survive the opening of the spinal canal, whose nerves long retain their sensibility, and whose roots of nerves for the posterior extremity run for such a considerable space in the canal separate, that no mistake can occur as to which are divided, and which are so thick that no one of them can be overlooked,) that Bell's theory with respect to the nerves is fully established.

But, with respect to the other question, the functions of the several regions of the cord, experiment has decided nothing absolutely; and pathological results are contradictory: and so far we fully agree with Dr. F. Nasse.*

When these considerations are kept in view, although we admit that the observations of Dr. Nasse, as well as others that might be quoted, show that much is yet to be done before the details of the theory of Bell, as far as the cord is concerned, are satisfactorily made out, we shall not find any thing in them to shake its grand principle,—that every filament of nervous matter has its own specific endowment, and is incapable of performing functions to which other filaments are subservient.

After referring to Magendie's experiments, which seem to prove the incapacity of stimuli, applied to the detached roots of the nerves, to produce motions, Dr. Nasse relates a curious experiment, performed with the view of determining how far the mental functions of the spinal cord are dependent on the integrity of its parts.

"I divided the spinal cord of a young dog immediately below the last dorsal vertebra, and having detached a string of the posterior fasciculus from the rest, leaving it connected at its inferior part with the lumbar portion of the cord, I placed it on a glass plate, and submitted it to the influence of a galvanic pile, composed of six pairs of plates, an inch and a half in diameter, in such a manner as that the electric fluid should touch only the detached portion. I then removed the detached string, and treated a similar portion of the anterior fasciculus in the same way. On neither occasions did the slightest motion appear. On the other hand, motions of the haunch and hind legs took place when the wires were applied to the uninjured part of the lumbar division of the cord."

It appears to us, however, that the previous observations of Dr. N. on the fallacies attending experiments on the functions of the spinal cord are particularly applicable in this instance; and that he could scarcely expect that irritation of the detached part of the anterior fasciculus should produce what would at any rate be a feeble effect, after the rough treatment to which the posterior fasciculus had been previously subjected.

The difficulty of ascertaining the influence of partial injuries of the

* Vide Müller's *Physiology*, vol. i. pp. 629 and 794.

spinal cord on its mental functions, has given rise to much difference of opinion amongst physiologists. As already stated, it is much easier to determine the loss of its motive power than the deprivation of its sensibility. The cases related by Magendie, Velpeau, Ollivier, and Dr. Nasse present contradictory results with regard to the relation of the grey matter with these functions; and our author thus concludes his account of them:

"If we compare the cases in which the manifestations of sensation and voluntary motion ceased, although some portion of the spinal cord remained uninjured, with those cases in which, under the same circumstances, the power of motion at least was retained, we are forced to allow that there must be some parts of this organ of more importance than others to the maintenance of its mental relations. Where these parts (which are still to be discovered,) remain entire up to the period of death, and then rupture, we can conceive how the observers of such cases are led to believe that sensibility and mobility may exist after complete separation of the spinal cord. This appears to be the probable explanation of the case mentioned by Desault, in which the patient is stated to have retained the power of voluntary motion in his limbs, after complete laceration of the spinal cord in the dorsal region."

The relation of the *different regions* of the spinal cord to the sensitive and motive power of the parts receiving their nervous supply from each of these regions, is the subject next considered by Dr. Nasse, and forms one of the most interesting portions of his essay. Although a superficial enquiry might lead us to suppose that each region of the cord governs, both in health and disease, the functions of the peculiar nerves to which it gives origin, more extended observation teaches that this is by no means the whole truth, and that there is so intimate a connexion between its different portions as considerably to modify our inferences from physiological and pathological phenomena. When the injury or disease of the cervical portion of the cord is not so great as speedily to destroy life, it sometimes happens that loss of sensibility, or of the power of voluntary motion, or of both, is limited to the parts which receive their nerves from this region. This is by no means, however, the general rule; for it most frequently happens that organs supplied with nerves from portions of the cord below this region share in the paralysis. Cases also occur in which the degeneration or injury has been confined to the cervical region; and yet the lesion of function affects, not the parts which derive their nervous supply from this portion of the cord, but those which receive nerves from the dorsal or even the lumbar vertebræ. Instances of this kind are related by Pott, Sir E. Home, Boyer, Abercrombie, &c.; and Dr. Nasse mentions one which came under his own observation. It not unfrequently happens also that disease of the cord in the dorsal region affects parts receiving their nerves above this division. Paralysis of one or both arms is a common result of disease in the dorsal vertebræ; and Legallois has seen destruction of the lumbar portion of the cord in rabbits twenty days old, quickly followed by failure of the nervous energy of the cervical and dorsal portions.

"Physiologically considered, the foregoing observations seem to prove that, with respect to its relations to sensibility and voluntary motion, the vital unity of the cord, the combination of its various parts to form one whole, should be taken into account more than is generally done. There are certainly relations which belong to one of these parts more than another; each portion, however, depends upon the influence of

the rest for its vital manifestations, so that, in this point of view, the cord appears to bear the same relation to its component parts as the brain."

This we think a just and important observation. The vital unity of the spinal cord is less apparent in the relations between both sides of the organ, than in those which occur between different parts of the same side, as was long since proved by the experiments of Galen. In a few cases, division of one side of the cord has produced a corresponding degree of influence on the uninjured side; although separation of the two halves of the cord by a longitudinal incision appears, from the experiments of Dr. Nasse, to have produced very little appreciable disturbance of motion. Where paralysis has arisen from the pressure of a tumour on one side of the cord, both sides have been implicated, but one side more than the other. Whether disease strictly confined to one side of the cord can in any case produce symptoms referred to the opposite side, remains to be proved.

We may next follow our author in the enquiry into the influence which the spinal cord, as an organ having such important relations to motion and sensation, may exercise on the brain. Two circumstances observed in cases of spinal disease first claim our attention: first, the loss of voice, noticed by Abercrombie; and, secondly, the gradual loss of sight frequently occurring in *tabes dorsalis*. The first phenomenon was observed by Chausset to follow division of the spinal cord in dogs, between the superior vertebræ; and Bischoff has shown that it always follows section of the roots of the spinal accessory nerve. Dr. Nasse found that, in cats and rabbits, division of the spinal cord in the dorsal region seemed to be followed by loss of voice in a few hours after the operation, although respiration continued. He could not distinctly ascertain that loss of sight resulted in any instance; and he is therefore inclined to attribute this occurrence, when apparently resulting from *tabes dorsalis*, to the influence of the spinal cord on the abdominal ganglia; and he justly appeals, in support of this explanation, to the relation, so familiar to every practitioner, between deranged states of the digestive system and disordered function of the organs of vision.

The observations of Esquirol and Ollivier on the condition of the spinal cord in cases of epilepsy, show that this organ may exercise a considerable influence on the brain. Its effect on the mental functions is also seen in cases of pressure on the cord from dislocation of the vertebræ in the cervical region. "In such cases," says Dr. Nasse, "the patient generally receives the assurance of approaching death with tranquillity, and even gaiety: indeed, this indifference about life is observed so constantly, that it may be looked upon as a general rule. Hence it would appear that, in the ordinary condition of both organs, the spinal cord exercises an influence over the brain; not, however, such as is necessary for the performance of its intellectual functions." We have ourselves seen an instance of injury of the spinal cord by fracture of the sixth and seventh cervical vertebræ, where there was no aberration of mind during the first few hours after the accident; and we have also known a case of complete loss of voluntary power over every organ below the upper part of the neck, in which recovery gradually took place, without disorder of the intellect at any period of the complaint. The inference drawn from such cases, however, can scarcely be regarded as free from objection.

In treating of the relation of the spinal cord to respiration as a voluntary act, Dr. Nasse states his objections to what he considers the weakest part of Sir C. Bell's theory respecting this function. The statements of Bell as to the origin of the respiratory nerves from the sides of the medulla oblongata and spinal cord by single roots, and the absence of ganglia upon them, are not regarded by Dr. N. as correct; and he brings forward cases of injury and disease affecting the lateral columns, in which the respiratory movements were not impaired. He does not particularly mention, however, what has always appeared to us one of the strongest objections to the theory,—that many nerves unconnected with respiration, particularly those of the axillary plexus, have always been described by anatomists as connected with the lateral columns of the cord, in the same degree as are the phrenic or the intercostal nerves.

In his observations on the dependence of the respiratory movements on the will, Dr. N. appears to us to have misunderstood Sir C. Bell's meaning; supposing him to maintain that respiration is strictly an involuntary act, as if it were managed on the same principle as circulation. But we think, that Sir Charles only asserts that the function is put under the guidance of "a sensibility more certain in its effects than the will;" in which he is clearly right. On the other hand, Dr. Nasse is certainly justified in the assertion that the nerves and muscles concerned in respiration are strictly under the dominion of the will; but we think that he goes far beyond the truth in maintaining that their necessary and constant actions are produced by the stimulus of volition. Much discussion with regard to the voluntary and involuntary contraction of those muscles which are placed under nervous influence, might, we think, have been avoided, if the source from whence that influence is derived had been strictly attended to. Nearly every muscle in the body which is supplied with motor nerves may be excited to action either by the will, or by an involuntary impulse arising from an impression made on the sensitive nerves, and conveyed to the cerebro-spinal axis; and, although it is a point at present keenly debated amongst physiologists whether or not this impression must amount to a *sensation* before giving rise to motive influence, it seems generally conceded that this influence is quite independent of *volition*. In regarding all the muscles which can be thus excited to action as susceptible of these two kinds of stimuli, one resulting from a physical impression, the other from a mental act, and both conveyed by the same nerves, we are led to perceive that the same muscle may be either voluntary or involuntary, according to the source and degree of the nervous influence by which it is excited; and the general character of the muscle will depend upon its usual or predominant action. This explanation applies with peculiar force to the mechanism of respiration, a function which is in itself purely organic, and therefore involuntary, and which in the lowest animals, as in vegetables, requires no effort for its constant performance. Though, therefore, we regard the interchange which occurs between the air and the blood as an act of the same character with the processes of nutrition and secretion in other parts, it requires for its continuance a series of mechanical changes, for which a muscular apparatus is adapted; and, although these changes are not placed beyond the control of the will, as are those *immediately* concerned in the maintenance of organic life, yet they do not appear to us

to be dependent upon it. We agree with Sir C. Bell, therefore, in regarding the ordinary movements of respiration as produced by a nervous stimulus distinct from that excited by the will, (although we do not conceive that the motive influence is conveyed by different nerves;) and the muscles concerned in them, though partly under the control of volition, are compelled to exercise their functions without any lengthened intermission, by the strength and constancy of this stimulus. Other muscles, however, as those which raise the scapula, are usually subject to the will, and may be regarded as strictly voluntary, though sometimes involuntarily called upon to assist in the function of respiration, when the stimulus is excessive; but we have been ourselves acquainted with cases in which these muscles, when prevented by paralysis from responding to the influence of volition, could still be called into action by a strong stimulus originating in the respiratory organs. We may refer also to several interesting cases mentioned by Sir C. Bell, as fully proving, to our minds, that the respiratory stimulus is distinct from that of the will, and sometimes opposed to it. Some observations on instinctive actions in general, which are introduced by our author in illustration of his views on the subject of respiration, would detain us too long, were we to enter upon the consideration of them; and we, therefore, pass on to the succeeding portions of his essay.

That the desire for food does not depend on the connexion between the digestive system and the brain, through the medium of the vagus, appears to Dr. Nasse to be proved by its continuance after division of these nerves. It seems to be equally unconnected with the integrity of the spinal cord, and even remains unimpaired, when, in addition to division of the latter, the pneumo-gastric nerves are also divided. We much doubt, however, whether the experiments on animals, on which Dr. Nasse relies, will warrant this inference. It is true that dogs and rabbits will eat heartily after this operation has been performed, but is it for nothing but the purpose of satisfying hunger? The experiments of Brâchet lead to a different conclusion; and we are inclined to agree with him in believing that it is by the sensitive portion of the par vagum that the impression is conveyed to the sensorium by which the sensation of hunger is excited.

From the consideration of the mental relations of the spinal cord, we turn now to examine those which are more strictly physiological. Dr. Nasse has treated this part of the subject with his usual ability; and, although doubtful whether the distinction of the mental and physiological functions of this organ can be strictly observed, we look forwards with interest to the continuance of his investigations. He considers the spinal cord with reference to its influence on muscular contractility, on the circulating system, on the peristaltic motion of the intestines, on the functions of the rectum and bladder, on the contractions of the uterus, on erection and seminal emission, on animal temperature, on nutrition and secretion, and on local and general vitality.

The various experimenters who have proved that paralysed limbs retain their contractile power for some time, have made no attempts to ascertain what is the exact share which the spinal cord has in the maintenance of muscular irritability under such circumstances. The investigations of Dr. Nasse, with the view of determining this point, accord fully

with the views of those who regard this property as implanted in the muscular fibre itself, and as independent of nervous influence. The purpose of his first experiment was to ascertain the relative power of the stimulus excited by the will and that of galvanism in exciting muscular contraction; and he found that the leg of a rabbit, which could raise by a voluntary effort a weight of four pounds, even after the lumbar portion of the spinal cord had been laid bare, was scarcely excited to lift it by the transmission of a smart electric discharge through the inferior portion of the cord, when separated from the rest.

Although the motions observed in limbs for some time after their nervous connexions are divided, and the temporary increase of irritability under the same circumstances, seem to prove that this property is independent of the large nervous masses, yet it appears, from the experiments of Müller and those of Dr. Nasse, that paralysed muscles lose this property after a certain time. It becomes an important question, therefore, whether its abolition is the immediate result of the interruption of the influence of the spinal cord, or is indirectly caused by the impairment of the nutritive processes. To ascertain the truth on this subject, Dr. Nasse divided the spinal cord in frogs (during the winter season,) immediately below the occiput, then cut the nervous trunks passing to one of the hind legs from their connexions with the spinal cord close to the vertebræ, and exposed both hind legs to the influence of a galvanic apparatus, composed alternately of plates of copper, iron, tin, lead, and zinc, the chain being completed with silver wire. By these means he found that the irritability of the sound limb was usually less than that of the one whose nerves had been divided, (a greater stimulus being required to produce the same effect,) and that its duration was also inferior; and the last result was still more evident when the head was cut off, instead of the spinal cord being divided. The results of these experiments lead, therefore, to the belief that the spinal cord possesses scarcely any immediate influence on the maintenance of irritability; and consequently favour the supposition that the section of the nerves derived from the spinal cord abolishes this property by means of the gradual changes which it produces on the nutrition of the nerves and muscles. They appear to us to be in strict accordance with those of Dr. Wilson Philip, and with the more decisive experiments of Dr. Reid, in which it appeared that, after the irritability of muscles had been exhausted by irritation, it could be perfectly recovered, although their nerves were cut.*

The controversy respecting the influence which the spinal cord exercises over the action of the heart, in which Dr. W. Philip and Le Gallois occupied the most prominent position on opposite sides, must be still fresh in the memory of several of our readers. We believe that the doctrine put forth by Dr. Nasse, about the period of the controversy, and afterwards supported by his experiments, is regarded by many as correct; viz. that the influence of the spinal cord is an important co-operating cause in the circulation, but that it is by no means the sole agent.

Regarding the influence of the spinal cord on the peristaltic motion of the intestines, the next subject treated of by our author, it is difficult to arrive at any unexceptionable conclusions. So many complicating

* Transactions of the British Association, vol. iii., pp. 671-4.

circumstances influence this action, that inferences, either from the results of experiments or of disease, must necessarily be open to much fallacy. After the spinal cord in the dorsal region of a rabbit was divided, Dr. N. found that a drop of croton oil produced no alvine evacuation. Brâchet obtained a contrary effect; but Schröder Van der Kolk and Fock have since found that croton oil has no effect on healthy rabbits.* As to the effects of spinal paralysis in the human subject, there is equal difference of opinion; but those who have observed the constipation which so frequently follows injuries of the lower extremities, requiring absolute rest in the supine posture, would not feel much difficulty in attributing to a similar cause the inactivity of the bowels which sometimes accompanies paraplegic affections. Gölis states that, in inflammation of the spine in children, extremely small doses of calomel unload the bowels; and this, if there be no complication in play, might be a valuable diagnostic between inflammation of the brain and spine.

That the spinal cord has an influence over the functions of the bladder is beyond doubt; but it remains to be explained why, in some cases of spinal disease, we find retention; in others, involuntary discharge of urine. The results of experiments by Dr. Nasse, Brâchet, and others, lead to the inference that considerable injury or division of the spinal cord is generally followed by retention of urine, although a discharge frequently takes place before the death of the animal. On the other hand, there are many cases which tend to prove that incontinence is more frequently connected with slighter injuries of the spinal cord; and it is a common symptom where disease of the cord comes on gradually. In a remarkable case of paralysis, mentioned in the 21st volume of Hufeland's Journal, the patient had first retention of urine, then incontinence, and, as his health improved, he recovered the natural power of retention. After some observations on the share which the diaphragm and abdominal muscles have in emptying the bladder, Dr. Nasse observes that farther investigations are necessary to determine what influence each of the regions of the spinal cord has over incontinence of urine, as also whether the different fasciculi which compose that organ exercise different functions, corresponding to the different actions of the bladder. We would observe, however, that what is usually called retention of urine does not imply loss of power in the muscular fibres of the *bladder*, which act perfectly when a catheter is introduced. It seems to be either a tonic spasm or a loss of the power of voluntary relaxation in the *voluntary* muscles which surround and compress a portion of the urethra. On the other hand, the incontinence of urine may proceed either from loss of tone in these muscles, or, in the later stages of paraplegia, from increased stimulation of the bladder, connected with an inflamed state of its mucous membrane. These considerations, which we suspect are often overlooked, incline us to believe that the muscular fibres of the bladder itself are, like those of the intestinal canal, excited to action by the direct stimulus of the fluid contents of the viscus, independently of nervous agency; but that the associated movements which, in the usual state of the body, are connected with their contractile efforts, are analogous to those of respiration, being produced by an impression conveyed from the

* Vide Müller's Journal, 1836, p. cxl.

lining membrane of the bladder to the spinal cord, and thence acting on the motor nerves.

There is no less difficulty in ascertaining the influence of the spinal cord on the contractions of the uterus. From Brâchet's experiments, it has been concluded that the power of the uterus is destroyed by injuries of the spinal marrow, which produce complete paraplegia; but the cases adduced by him do not seem to us to prove more than that the parturient efforts are not, under such circumstances, sufficient to terminate the labour. Dr. Nasse relates an interesting case, communicated to him by Professor Succow, of Jena, in which painless labour and delivery took place during the seventh month of pregnancy, after fracture of the third and fourth cervical vertebræ by a fall, and complete paralysis of all the inferior nerves. The child was dead, and the mother died not long after delivery; her intellect, and power over the parts above the seat of the fracture, remaining unimpaired to the last moment. A case is related by the late Dr. Cheyne, in which a living child was expelled, although one-half of the body was paralysed; and a similar instance has occurred within our own knowledge. We can have no doubt, therefore, that effective uterine contraction may take place independently of any efforts or power of exerting efforts to produce voluntary muscular action.

Erections and seminal emissions, but particularly the former, are of exceedingly frequent occurrence in cases of disease or injury of the spinal cord; and, in the experiments of Segalas, D'Etchepare, and Serres, these phenomena followed injury of the spinal cord after its separation from the brain. Dr. Nasse thinks, therefore, that the arguments which have been alleged to prove a peculiar relation between the cerebellum and the organs of generation are, for the most part, equally applicable to the upper part of the spinal cord, the condition of which has not been sufficiently attended to, either in experiments or pathological observations. We believe that some of those who regard the cerebellum as the peculiar residence of the instinct of procreation are inclined to limit its seat to the vermiform processes, which entirely constitute the organ in fishes; and if these processes be regarded, as we think they may, in the light of prolongations of the medulla oblongata, the views of these individuals will nearly correspond with those of Dr. Nasse. We do not, however, feel inclined to enter at present on the discussion of the merits of this question, and shall pass on to a more practical subject.

That the temperature of paralysed parts is generally below the normal standard, is now universally admitted. From the observations of Dr. Nasse and Mr. Dundas on pathological cases, it appears that the diminution of temperature is more in proportion to the loss of sensibility than of the power of motion. But, as these observations are open to many sources of fallacy, our author endeavoured to determine the question experimentally, by dividing the anterior fasciculus on one side and the posterior on the other, the temperature being measured in small wounds of the same sides, made in similar situations on each extremity. In the first experiment, on a rabbit, there was a difference, after five hours, of half a degree (Reaumur,) in favour of the limb in which motion was paralysed; in the second, on a cat, the difference was greater, but it was found after death that the anterior fasciculus had not been completely divided. A third experiment again exhibited a trifling advantage in

favour of the same limb, especially half an hour after the operation; in a fourth, the whole left half of the spinal cord was divided in a full-grown cat opposite the tenth dorsal vertebra, and no difference was noticed; which we think may have been owing to the partial interruption which the physiological functions of the cord may undergo from simple division. Dr. Nasse intends to follow up these experiments, varying them so far as to obstruct or at least diminish the afflux of blood to the paralysed parts.

Numerous observations prove that many of the fluid secretions are influenced by the conditions of the spinal cord. The following experiments were made by Dr. Nasse, to ascertain what effect division of the cord has on the secretion of bile.

"The gall-bladders of five full-grown rabbits were opened at one end, the contents received on paper, and the open end closed by a ligature; the external wound was then closed with sutures, and the spinal cord divided between two of the inferior dorsal vertebræ. For the space of four or five hours after this operation, the animals ate more or less. In three which died between the twelfth and twentieth hours, the gall-bladder contained nothing which could be looked on as bile; the first contained a reddish fluid which appeared to be diluted blood, probably resulting from the mode in which the operation (the first of the kind) was performed; the other two were nearly filled with a colourless watery fluid, which became slightly coloured and turbid on the addition of muriatic acid. In the fourth rabbit, in which the contents of the gall-bladder had been removed ten hours after the operation, and again twelve hours subsequently, the fluid found in the gall-bladder, some hours after the animal's death, was more abundant and of a yet lower colour than that which had been taken out at the former of these periods. It was also rendered more turbid by the addition of muriatic acid, and yielded a more copious precipitate with acetate of lead. In the fifth, which lived thirty hours, the gall-bladder was nearly filled with a yellow fluid yielding a copious greyish white precipitate with acetate of lead, which dissolved for the most part in alcohol, communicating to it a grass-green tinge. The difference of these results from similar experiments can be attributed only to the different degree of vital power which the animals previously possessed."

Dr. Nasse is led to believe, from the facts which he has collected, that the state of the spinal cord has more immediate influence on the processes of nutrition than that of the brain; but we do not perceive in them any real information on this subject. The last topic to which he directs our attention is the influence of the spinal cord on local and general vitality. Many observers have noticed the extraordinary liability of paralysed parts to mortification, when exposed to degrees of heat and cold which produce little or no effect on sound parts; and that the parts which suffer from pressure are sooner and more extensively attacked with gangrene in palsy than in other forms of disease. It is evident that the lowered temperature of palsied parts is one cause of the increased effect of the application of heat; but this partial explanation will not apply to the opposite change; and we believe with Dr. Nasse, that the lowered degree of vitality, implying that any increased vital action is sooner followed by depression, is also concerned in producing the difference. Dr. N. has observed that paralytic patients, in whom softening of the spinal cord has been discovered after death, remain exempt from gangrene longer than others; a fact that seems to correspond with the ordinary phenomena of softening, in which lesion of motion is much more common than lesion of sensation. He proved also by well-conducted experiments, that Legallois was right in ascribing the fatal result of removal of the lumbar portion of the spinal cord to the severe shock thus given to the general circulating

ystem. Having divided the spinal cord in the neck of several rabbits, we cut out the lumbar portion, carefully avoiding all crushing or laceration. After the first operation, the rabbits looked around with a vigilant air, attempted to get away, and took food; but as soon as the lumbar portion of the cord was removed, they laid the head on one side, the pulsations of the heart could be heard no longer, the animal gasped for breath and died. One died a minute after the latter operation; the rest did not live four. This result is modified by the age of the animal; for a young dog lived several hours after the removal of the lumbar portion of the cord; and it also occurs as a consequence of the removal of the posterior fasciculi only. The following are his conclusions with regard to the *modus operandi* of this injury:

"The proximate cause of death, in cases where the lumbar portion of the cord is separated from the nerves and parts connected with it, can scarcely be anything but the sudden arrest of the motion of the blood. It is not stoppage of respiration, for the arteries contain bright red blood; perhaps there may be some unknown derangement of the composition of the blood having no connexion with coagulation. Two circumstances may diminish the operation of this cause, so dangerous to life; first, a diminished necessity for blood and respiration, as in the fetus, in newly-born animals, and in cases in which the brain has suffered violent concussion or is wanting; and secondly, an increased degree of power of the heart and of the vital energies which otherwise influence its actions. The difference in the proportion of this power in different animals, and even in individuals of the same species, must make considerable differences in the results of cases of such partial removal of the spinal cord; a circumstance which Legallois complains of as having interfered with his investigations."

At the conclusion of the foregoing article, Dr. Nasse announces his intention of continuing his investigations on many of the points already noticed, as well as others which have been touched on slightly or not at all; among the rest, he proposes to examine the doctrines which have been recently promulgated by Dr. Marshall Hall. We need not say that we look forward with great interest to the results of his future researches.

II. *On the Diseases of the Brain which consist merely in Functional Disturbance, particularly with Reference to Diagnosis.*

This Essay, also by the elder Nasse, is contained in the Third Fasciculus, published in 1836. As the subject is one of the highest practical importance, we shall examine at some length how far our knowledge of it is extended by the present contribution.

Every pathologist is aware that, in tracing the phenomena of functional diseases of the brain, impediments beset almost every step of his progress. The mental phenomena, which constitute the most prominent indications in many cases of cerebral disease, are regulated not merely by the condition of the brain, but in great degree by causes totally distinct from organic agency of any kind. It is unquestionable, on the other hand, that the corporeal state exercises an energetic influence over the origin and course of diseases of the mind; but our knowledge is here much too vague to allow us to hazard even a probable speculation on the organic changes which give rise to mental processes, or are instrumental to the manifestation of their results in health, and *a fortiori* in disease. There is great difficulty, therefore, in connecting by the relation of cause and effect any particular material changes in the brain with disordered

mental phenomena, even when they are distinctly concurrent; and as the brain, like other organs, is liable to variations in its functional activity, giving rise to states strikingly distinct, but apparently independent of any material change, it is obvious that the difficulties to be encountered in fixing and analysing the symptoms which characterize its deranged conditions, are almost indefinitely increased. The loose terminology of writers on diseases of the brain is also a source of error in drawing inferences from their statements; they have in most instances overlooked the distinction between mediate and immediate symptoms, and have classed all, whether primary or secondary, mental or corporeal, under the same denomination, cerebral. But a headach and an incoherent expression do not stand in the same relation to the brain; the latter is not, like the former, an immediate product of the diseased organ, but depends upon the alteration which the mind undergoes in certain conditions of the body. Independent of these sources of difficulty are the endless varieties of age, sex, temperament, habit, and coexisting disease, which become so many sources of complication and obscurity.

Pathological anatomy, as at present pursued, is not likely to afford much assistance in the study of the functional diseases of the brain. The material changes of which our present modes of investigation render us cognizant, are only the occasional attendants or the ultimate products of functional disturbance; and do not stand in any fixed relation to derangements in the activity of the organ. Every pathologist is aware that symptoms not only of mental disease, but of excited or depressed nervous energy, may occur during life, without any appreciable alteration in the subsequent appearance of the tissues. But, even with these facts in view, it has been too often forgotten that disease in its primary form is usually a change of vital condition not to be detected in the dead body; and that the morbid appearances sometimes discovered are valuable only as leading us to some knowledge of those preceding vital changes on which the functional disturbance usually depends. Thus the state antecedent to most degenerations of the brain, supposed by some to be congestion, by others denominated inflammation, cannot be that which originates the symptoms; since its existence in all cases is very doubtful, and, if admitted, we cannot help supposing some previous vital change which precedes and gives rise to it, and determines the nature of the resulting effect. Our knowledge, therefore, of the nature of functional diseases of the brain is not more certain when we find them accompanied by organic changes, than when no morbid appearances can be detected. In both cases we are equally ignorant of the causes which give rise to the derangement; and our duty is therefore to observe carefully and compare cautiously individual cases of such disorders, so as to arrive, by a legitimate process of induction, at such an arrangement of the phenomena which they present and the causes from which they proceed, as may be applicable to practical purposes.

After detailing at some length the difficulties attending the investigation of functional diseases of the brain, Dr. Nasse observes that they do not prevent us from carrying the diagnosis in such cases to a considerable degree of perfection. We may be able, for example, to distinguish simple functional diseases of the brain without being able to fix the symptoms which characterize affections of its individual parts; we may distin-

guish between meningitis and cerebritis, and observe the difference of function which the brain exhibits according as the superficial or deeper parts of its substance are occupied by disease.

The subjects to which the present essay is devoted are as follows:—1. Increased excitement of the brain. 2. Deficient excitement of the brain. 3. Morbid increase of the excitability of the brain. 4. Diminished excitability of the brain. 5. Congestion of the brain. 6. Plethora of the brain. 7. Exsanguine state of the brain. 8. Morbid preponderance of the arterial or venous system of the brain. 9. State of the brain in concussion. Other points, particularly the effects of pressure and inflammation, will form the subject of a future communication. It will be seen that this arrangement is formed on the known or supposed causes—not the symptoms—of the disorders in question; and it seems to us a serious objection to it, that the five last-named causes are much more distinct and tangible than the four first: most of them being, as we have before intimated, the results of other less appreciable morbid changes. Moreover, as the first are in fact only inferred from the absence of any causes of the latter kinds, for the purpose of explaining the phenomena of individual cases, the last heads should have been considered first; indeed, we should have thought it better to treat of the effects of pressure and inflammation, the kinds of injury which present the most definite objects of study, before entering on any of the more obscure topics here enumerated. We must also observe, that the whole enumeration is defective, inasmuch as there are two other causes to which we have no doubt, as has been remarked in a former number, that many functional disorders of the brain may be ascribed; viz. altered nutrition of the nervous matter, (as in the case of excessive quantity of phosphorus in its composition,) and altered *quality* of the blood pervading it, as in the case of absorbed poisons or retained excretions; or, to express the same in more general terms, the author has spoken of increase and diminution in the excitability of the organ and the stimuli applied to it, without sufficiently attending to the *qualitative* alterations of which both are susceptible. We shall now consider seriatim the divisions under which Dr. Nasse's enquiries are comprehended.

1. *Increased excitement of the brain.* As the function of every organ depends upon its vital properties being excited to manifest themselves by their appropriate stimuli, it is obvious that an excess or diminution of the stimuli on the one hand, or of the vital properties on the other, will give rise to disordered action. This is undoubtedly the most philosophical mode of distributing the causes of functional disturbance in cases where we can discriminate them with any probable correctness. Thus, the state usually understood in this country by the term *irritation* may arise from increased stimulation, (as when the eye is dazzled by a brilliant light,) or from increased excitability of the organ, (as in photophobia from morbid sensibility of the retina.) This term has, however, been recently employed by some writers to designate the natural state of activity of any organ; but it would, we think, be better not to change its old signification, as the word *excitement* expresses all we require for the latter purpose. Although most physiologists are in the habit of speaking of the external influences, by which the functional manifestations of an organ are excited, as *stimuli*, Dr. Nasse objects to this application of the term, which he

restricts to such influences when excessive in quantity or injurious in character, so that the action which results from them is of a morbid kind. We do not, however, see the possibility of drawing a line which will define with precision the boundaries of these classes of influences; and we prefer retaining the term *stimulus* as applicable to any agent capable of exciting a vital action in an irritable part; since the nature and degree of that action will bear a strict relation to the nature and degree of the stimulus.

We shall not at present enter upon the oft-disputed question of the nature of the functions of the brain, since it is of no consequence to the present enquiry whether the corporeal structure itself performs the processes of mind, or furnishes the conditions for their manifestation. Whichever of these two be its purpose, it is admitted that its action is the result of the effect of stimuli, whether physical or mental, upon its structure; which structure being possessed of excitability (or in other words of certain peculiar vital properties,) manifests it by the phenomena it then presents in a state of healthy excitement. But when either the stimulus or the excitability is in excess, a state of irritation is induced, which may be so trifling as scarcely to deserve being regarded as a morbid condition, or which may be fraught with the greatest injury both to the functions of the organ itself, and of the whole system with which its sympathies are so close. These are, so far as we can understand, Dr. Nasse's views on this subject; but they are rendered rather obscure by what we deem the misuse of the term Irritation which he applies to the first division of functional disturbance, to which we have given the designation of increased excitement. We trust that we shall be excused for entering into these details on a subject so trite and hacknied; but there has been in physiology and in pathology a great deal too much of that vagueness in the application of terms which retarded the progress of the exact sciences in ancient times; and there can be no doubt that correct definitions are the best foundations for any subsequent process of reasoning.

Of the form of irritation of the brain arising from increased stimulation, the causes are fully but not very discriminately enumerated by our author; the mental and bodily causes are classed together, no distinction is made between alteration in the quantity or character of the natural stimuli and the addition of others entirely new; and we find mental inquietude, application of heat or electricity, pressure, intestinal derangement, &c. all placed on the same footing. From simple irritation of the brain may arise, according to Dr. N., headach, sleeplessness, convulsions, delirium, insanity, mania, epilepsy, irregularity of pulse, and fever; also starting from sleep, irritability of temper, anxiety, and certain nervous affections. It is plain that, according to the phraseology of our author, death cannot be the result of violent irritation of the brain, as Piorry supposed, without the supervention of some other of the affections he enumerates. A common result of cerebral irritation is, that it renders other states to which it allies itself more intense and protracted; for example, the apoplectic tendency, and insanity from other causes.

Dr. Nasse enters into farther discussion as to the dependence of such a train of symptoms on the state which is strictly termed irritation of the brain.

"Experiments on animals, in which injuries of the brain appeared to be unaccom-

anied by pain, seem at first view to discountenance the idea that *pain* is attendant on irritation of the brain. We must, however, remember that the animals used for these experiments were generally thrown into a state of stupefaction by the opening of the skull and the effusion of blood in and upon the brain, and consequently must have been rendered less capable of exhibiting manifestations of pain."

In this and some of the following observations we think that Dr. Nasse as not sufficiently distinguished the brain proper from the encephalon. According to the opinions usually received at present, sensibility to pain, though not an attribute of the brain proper, is the chief vital endowment of parts of the nervous matter within the head: and it is certainly true, as stated by Dr. N., that, when the irritating cause is in the brain proper, the pain sometimes remains confined to the irritated spot.

"In general, however, it extends farther within the skull. Sometimes it is felt less at the spot where the irritating body (a tumour, for instance,) lies, than in another and a distant situation. . . . Whether headach from irritation of other parts may become as intense as that which proceeds from an affection of the brain itself, is doubtful or improbable: indeed, the slight degree of headach in fevers complicated with abdominal disease enables us to distinguish them from meningitis." . . . Sleeplessness is another symptom which indicates disease of the whole brain. But in this state, as in others, somnolency may be combined with inability to sleep. The irritation does not permit it to terminate in sound sleep, or the patient slumbers while and then awakes, generally with a start." . . . "Convulsions frequently occur in children, particularly during dentition and abdominal affections. In the paroxysmic attacks to which young females are subject, the brain has evidently a share, though the source of irritation lies in distant organs."

It is obvious here, again, that our author uses the term brain too vaguely, convulsions being strictly a symptom produced by an irritating cause acting (sometimes *through* the brain,) on the medulla oblongata and spinal cord.

"When delirium ceases immediately on the removal of a foreign body from the brain, it would appear that the state producing it was merely one of irritation. On the other hand, where stupor ceases, or where the pulse becomes stronger and fuller after the removal of a foreign body from the brain, we must say that the usual effect of pressure, rather than of irritation, has been produced and removed."

Dr. Nasse remarks, that the mental changes resulting from irritation of the brain are very different, according to the constitution of the individual and co-existing disease; and points out the frequency of maniacal excitement arising from derangement of the abdominal viscera, usually first showing itself by great irritability of temper. He does not think that fever, strictly speaking, can arise from simple irritation of the brain, but that the heart's action may be excited and disordered.

2. *Deficient excitement of the brain.* This state is thus characterized by our author:

"We recognize a state within the limits of health,—the state of tedium or ennui,—in which the activity of the brain becomes languid from the absence of the customary external influences, and in which the languor exhibits itself in the glance of the eye, in the features of the countenance, and, above all, in the sluggishness of the pulmonary circulation and frequent yawning. Whether, and how far, diminution of the vital influences essential to the natural state of the brain indicates disease, may be doubted. There are, however, two states which may evidently be attributed to this cause. The first of these is, where men, who have long led an active life, on withdrawing into retirement and ease, fall after some time into a state of mental apathy; the second is, where mental derangement is occasioned by fixed sorrow."

3. *Morbid increase of the excitability of the brain.* The meaning attached by Dr. Nasse to this term will be understood from our previous observations; and many of his observations on the state which it characterizes are of great value.

"Dissection affords no data to arrive at any conclusions with regard to the nature of this condition. There is no foundation for the assertion that the nervous influence is increased and exalted in morbidly susceptible parts: on the contrary, it can be shown that the nervous influence in such parts is diminished."

The symptoms which characterize increased excitability of the brain itself are headache, occurring under the ordinary vital influences; sleeplessness; vivid delirium; mania, under circumstances rendering this affection persistent; excessive sensibility of the external senses; convulsions. The absence of coincidence in these symptoms, and the predominance at one time of affections of the mind, at another of the senses, and at a third of the locomotive organs, depends most probably on the diseased state never affecting the whole brain simultaneously, and on the difference in the affected parts. These symptoms, it is true, taken in general, occur also in irritation of the brain, from increased excitement; but, as Dr. Nasse observes, the two states are demonstrably different. In increased excitability of the brain, the usual vital influences are sufficient to produce the violent and rapid actions, without any discoverable sources of irritation. His analysis of the symptoms indicative of this condition appears to us sufficiently valuable to be quoted nearly in full.

"The headache is intense, and most frequently *periodic* in its attacks; it is increased by the customary vital influences, and still more by stimuli. It increases after venesection performed under a suspicion of the existence of inflammation. The headaches under which hysterical and hypochondriac persons labour, and which cannot be referred to any existing irritation or inflammation, are of this nature. A moderate affection of this kind, connected with mental emotions, may continue, as pain; but it generally vanishes at the approach of delirium.

"The sleeplessness which is connected with this state, either lasts day and night continually, or it occurs only at night. The patient seldom lies broad awake; although his eyes may be open, he is subject to hallucinations, or is led away by a train of ungoverned thoughts. A tranquil sleep, could he but obtain it, would calm him in a few hours; but its absence is characteristic of the nature of the disease, and contributes largely to the production of delirium.

"Delirium may be termed the chief symptom of morbid excitability of the brain; the more complete its development, the more certain the presence of delirium. This delirium is vivid, intense, frequently wild. In general it comes on suddenly, and disappears with equal rapidity. It is frequently ushered in by severe headache, and is accompanied by hallucinations; and may, except when intense, be interrupted by the exhortations of friends. To produce delirium, nothing more is required, on the part of the body, than derangement of the susceptibility of the brain; but, whether this be sufficient of itself to bring on chronic insanity, is doubtful; that it can generate mania is certain, particularly when morbid sources of irritation proceed from the abdomen. In cases of this kind, where there is no plethora present, abstraction of blood is calculated rather to exasperate than to subdue the disease; the cause of irritation, whether originating in the abdomen or brain, must be first removed. Convulsions, accompanied by other symptoms, are not of such frequent occurrence in morbid excitability of the brain as derangement of ideas; but this remark does not apply to children, in whom delirium seldom occurs from this cause.

"It is of importance to the diagnosis of this condition that its symptoms observe a regular course, provided they are free from the disturbing concurrence of any foreign influence. In general they are paroxysmal, or at least present remarkable exacerbations, which occur, for the most part, in the evening or during the night."

We shall not detail the causes to which Dr. Nasse attributes this form of functional derangement, nor the diseases in the production of which it is concerned, since these will occur to most of our readers. He records a curious observation, however, which we cannot pass over,—that in fevers, (which seem to present increased excitability of the brain, as well as abnormal causes of irritation,) the feeble conceptions of idiots and simpletons sometimes become normally vivid and coherent about the period when delirium attacks other persons. We have ourselves seen some striking instances of the increase of intellectual power in habitually dull men, on the first occurrence of symptoms of insanity. The first effect of intoxicating liquors shows an analogous condition. A comparison of the various forms of disease attended with derangement of the cerebral susceptibility shows that delirium is a more constant symptom than pain, and seldom co-exists with it. In all cases the delirium is one of excitement: where it becomes stupid, there is reason to suspect that the state of the brain has changed. Tranquil sleep is the characteristic and complete crisis of morbid excitability of the brain.

It is not easy to distinguish the alterations of circulation and of secretion depending on this condition of the brain, from those which arise from other diseases co-existing with it; but, as Dr. Nasse observes, we can state with tolerable precision that the “vital turgor” is increased, (i. e. congestion occurs,) particularly in the eyes and face; that the head feels warmer, the skin warm and moist, the pulse somewhat accelerated but not hard, the urine generally of the natural appearance, and the bowels not particularly sluggish.

The phenomena which characterize the complication of morbid excitability of the brain, with its other diseased states, are next considered. Irritation of the brain supervening on such a condition gives rise, we are told, to a train of phenomena which differ materially from those of either of the constituents alone. At first the delirium, if present, becomes more intense; then suddenly follow exhaustion of the cerebral functions, derangements of the senses, stupor, and paralysis. Thus, it not unfrequently happened, when the stimulating practice in fever prevailed, that patients so treated fell suddenly, in the midst of their delirium, into a state resembling syncope. Where the brain is exhausted with reference to its subservience to the mental functions, but not with respect to its motive powers, an attack of epilepsy takes place. Where inflammation of the substance of the brain supervenes on this morbid excitability, there is generally suppression of cerebral activity rather than pain or delirium; while, on the other hand, in inflammation of the membranes, there is an exasperation of the cerebral symptoms. In all these complications, it is a matter of importance to weigh carefully the symptoms present when the cerebral disease first appeared, and before any aggravation occurred. The sudden occurrence and periodic return of violent pain during the course of the cerebral symptoms will sometimes serve to throw light upon the diagnosis, as being, in all probability, generally an indication of the supervention of morbid excitability. Delirium, from being slower in its development, affords less satisfactory grounds of distinction.

On this we shall only observe, that we apprehend it will be dangerous a practice to trust to any diagnosis indicating the dependence of such serious affections as are here mentioned on the condition of the brain to

which Dr. Nasse attributes them; excepting only that which is founded on a cautious trial of remedies which are used on the supposition of derangement of the circulation being the most important part of the disease.

4. *Diminished excitability of the brain.* In this state the usual influences cease to produce due excitement of the cerebral activity.

"The brain labours under torpor, and stimuli are necessary to the production of its usual vital actions. Two conditions, bearing some analogy to this, occur within the limits of natural life: one is seen in the diminished susceptibility of the brain during sleep, the other in the blunted sensibility which characterizes advanced age. (Of the existence of this state, which some have denied, there can be no doubt: for the diseases which furnish examples of it are by no means few.)"

Amongst the diseases mentioned by our author are some varieties of "nervous fevers," and the semi-comatose state often accompanying ulceration of the intestines in typhus fever. In some of these cases organic changes have been detected; but such cases did not present any remarkable difference of symptoms from those in which nothing unnatural was discovered.

"In some of these fevers, an alternation of stupidity and delirium is occasionally noticed. This, with other analogous alterations, seems to prove that the states of increased and diminished excitability of the brain are not so far removed from each other as their symptoms appear to indicate; and that, like other parts, it may fall into a state of oscillation, in which it is at one time morbidly independent of, and at another morbidly subject to, the agency of other parts of the nervous system."

In ascribing so much of the nervous symptoms of fever to mere alteration of the excitability of the brain, we think that Dr. Nasse has overlooked the changes which unquestionably take place in the character of its stimuli; for it can scarcely be doubted that the alterations, not merely in the quantity but in the chemical and vital qualities of the blood, on which all the actions of the brain and nerves are continually dependent, must produce a corresponding difference in the functional condition of those organs.

Dr. Nasse considers that some cases of apoplexy may also be referred to this cause; for, though recent improvements in pathological investigations have shown the rarity of the instances in which no morbid appearances are found, it is not impossible that, in some examinations, cadaveric phenomena have been mistaken for the indications of disease, and that the number of such cases is really larger than, from the experience of Rostan, Dr. Nasse, and others, it would appear to be. Although, when apoplexy occurs in connexion with evident congestion of the brain, we are in the habit of regarding the latter as the cause of the disease, we must not forget that either of these states may occur without the other, and that the congestion may itself depend upon some other alteration in the condition of the brain, to which the apoplexy is rather to be referred.

The disease described by Abercrombie, Hall, and Gooch, as occurring in children after copious diarrhoea or abstraction of blood, and occasionally without any known cause, is referred by Dr. Nasse to this form of torpor of the brain; but, where it is evidently the result of debility, we should consider it as more properly attributable to diminished flow of blood to the brain. Our author is of opinion that many forms of idiocy, mental imbecility, insanity, and even mania, are also connected with

diminished excitability of the brain; and that this may be confined to some particular parts of the organ, destroying the balance of the functions of the whole, and giving rise to irregular trains of ideas, as in dreams. In such parts he imagines that congestion and degeneration of structure are more likely to occur from diminished circulation; and that a more intimate connexion than is usually suspected may thus be traced between nervous and sanguineous apoplexy.

“ Besides the mental symptoms which are universally known, we observe in torpor of the brain inactivity of the voluntary muscles, feeble action of the heart, sluggishness of the intestinal canal, and absence of the natural turgor of the skin. The causes of this state of the brain are either such as lower the natural susceptibility of the brain by an immediate impression, as electricity, concussion, narcotic substances operating through the blood or nervous system, &c.; or they may depend upon influences producing excitement of the parts external to the brain. Thus, considerable injuries of the spinal cord, great excitement of the heart, of the uterus, or of the intestinal canal, may become sources of cerebral torpor. This affection never runs an acute or rapid course, except in some cases of fever, and seldom remains for any considerable length of time without producing more or less structural degeneration of the brain.”

Although we by no means wish to discourage enquiries of the kind we have just been considering, it must be confessed that, in the present state of our knowledge of the functions of the brain, these investigations are peculiarly unsatisfactory. The whole of this discussion on conditions of the nervous system, which are inferred merely from alterations of its vital actions, seems to us to amount to nothing more than a formal and somewhat pedantic statement of the important truth, (familiar, we hope, to most of our readers,) that all the nervous actions may be variously deranged,—sometimes by known causes of irritation, sometimes independently of any obvious exciting cause,—without the structure of the nervous system being altered, the circulation in it deranged, or its chemical nature, or that of the blood pervading it, being perceptibly or even probably diseased. This truth is kept in view by every intelligent practitioner in this country, although perhaps seldom clothed in the form whose outlines we have just depicted; and we might place in striking contrast with the somewhat vague generalities of Dr. Nasse's essay, the practical details and judicious applications to be found in Sir B. Brodie's recent work on Local Hysteria.

5. *Congestion of the brain.* There is no presumed or established pathological condition of the brain to which so many cerebral affections have been attributed as that which is understood by this designation. Its existence is inferred not merely from the appearances discovered on dissection, but from the concurrence of cerebral symptoms with increased pulsation of the carotids, redness and turgescence of the face, and from the good effects of abstraction of blood. Dr. Nasse exposes the inconsistency of attributing to the same cause the symptoms of torpor and excitement of the brain, both of which are usually regarded as indicating increased determination of blood to that organ; and, we think, very justly states that both may be dependent on other states of the brain, in which congestion does not occur at all, or only as a consequence. Increased pulsation of the carotids he does not regard as of itself indicating unusual determination of blood to the brain; and redness of the face he considers an equally uncertain sign, since it occurs where no congestion exists. “The bodies of persons who have died by hanging

show," he states, "how easily a remarkable congestion of the external parts may coincide with a non-congested state of the vessels of the brain." We believe, however, that all authorities on this subject agree in stating that venous congestion of the brain is at least equally constant with lividity of the face after this kind of death. Dr. N. considers that the benefit occasionally derived from bleeding in cases of supposed congestion is no proof of the existence of this condition, since it may have produced its effect by the removal of another and a previous cause of excitement.

"Lastly, congestion of the cerebral vessels, particularly of the veins, is frequently met with where the symptoms attributed to it had never existed. The cases in which pressure on the carotids was found to diminish the cerebral affection were not so much cases of congestion as of chronic local disease, in which the local mischief proved a stimulus to the rest of the brain, while subjected to the full impulse of blood, but ceased to be such when that impulse was diminished by pressure."

Hypertrophy of the left ventricle of the heart, and obstruction to the return of blood from the head, are said to be causes which necessarily give rise to congestion of the brain. Our author thinks, however, that this assertion requires confirmation. He believes that blood driven with unnatural force, by an hypertrophied ventricle, through open vessels, passes as readily through the brain as under ordinary circumstances. Obstruction to the return of blood from the head to the heart must tend, he admits, to produce cerebral congestion, if not obviated by the position of the body; but if the right ventricle receive a diminished quantity of blood, the left has less to expel. That obstruction to the return of blood from the head in the respiratory organs may go on to a very remarkable degree, without producing any of the phenomena of congestion, is seen, he remarks, in many instances of chronic pulmonary disease. Dr. Nasse thinks that Dr. Abercrombie has overlooked, in his observations on disturbance of the cerebral circulation, the existence of the cephalo-spinal fluid demonstrated in living animals by Magendie; the principal use of which our author supposes to be to prevent turgescence of one set of vessels from producing compression of the other, as Dr. A. supposes. "It should never be forgotten," he says, "in considering this subject, that morbid accumulation of blood always presupposes diminution of vital activity in the part in which it occurs." If he means that this diminution exists merely in the coats of the vessels of the part, we fully agree with him; and we are disposed to accord with him in the belief that the morbid state, of which it is a part, is sometimes the cause of the subsequent cerebral symptoms, rather than the accumulation of blood which may arise from it. Stieglitz, who is spoken of by Dr. N. as one of the best clinical observers of modern times, expresses it as his opinion that congestion seldom or never occurs in any organ in which there is not some other morbid process going on at the same time.

"What, then, is the state of the brain which is likely to give rise to congestion?—In the first place, irritation; numerous cases of congestion belong to this class. That increased excitability of the brain, in itself, is capable of increasing the quantity of blood circulating within the cranium, is not so easily proved. It may precede and usher in a state of congestion, but both cannot exist simultaneously. In the same way, a muscle which labours under persistent spasm, or, in other words, under exaltation of irritability, contains less blood. The assertion of Bicheteau that congestion

and increase of intellectual power may coexist, is extremely doubtful. No congested organ exhibits increased power; neither the eye, nor the heart, nor the lungs. Congestion is much more likely to be attended with torpor of the brain. In examining the symptoms of apparent congestion of the brain, we should first consider how much of the existing phenomena are attributable to the conditions of the nervous matter already mentioned as resulting from irritation, whether simple or combined with increased susceptibility, from torpor, or from inflammation. Again, it should be borne in mind that, as the causes which produce congestion of the cerebral vessels may affect only individual parts, the congestion may be also limited to distinct portions of the brain. Flourens states that, in his experiments on animals, he has observed congestion of the convolutions from opium, of the tubercula quadrigemina from belladonna, of the cerebellum from alcohol, and of the medulla oblongata from nux vomica."

In examining the question whether there is such a thing as congestion of the brain without disease, Dr. N. makes some very interesting observations on the relation which *thought* bears to the vascular condition of the brain. He is of opinion that clear quiet thought does not require any increase of the quantity of blood circulating in the brain; and that, where symptoms of congestion occur during the exercise of thought, they are to be attributed, not so much to the mere intellectual exercise as to the presence of some disturbing *emotion*. We regret that our space forbids us from following our author through this part of his essay, which will afford matter of much interest to the philosophical or physiological enquirer. We would observe, however, that, while we admit that mental emotion is a much more powerful cause of excitement and disturbance of the circulation through the brain than the mere exercise of the intellect, we think there is evidence that increased flow of blood to the head, and increased nutrition of the organ, are excited by prolonged demands upon its functional activity, just as the flow of blood to the mammary gland is in proportion to the degree in which there is a call for the secretion,—a fact familiar to every physiologist; and disturbance of the cerebral circulation seems to us particularly liable to occur from much *voluntary* mental exertion, continually checking the natural trains of thought, and forcing them into other directions.

6. *Plethora of the brain.* This state is regarded by Dr. Nasse as distinct from congestion, because, along with some of the signs of unusual determination of blood to the brain, a state of health is maintained, although the individual is predisposed to attacks of disease in that organ. We do not, however, see anything novel in his observations on this subject; and we may take the present opportunity of stating that we do not find, in this part of his essay, any sufficient reason to change the opinions which we expressed in a former Number, that disordered circulation within the cranium, arising from increased impetus of arterial blood, or obstructed flow of venous blood, is frequently of itself the immediate cause of the symptoms both of irritation and of torpor. We do not say that pressure thus produced is the sole cause, or that it ever constitutes the whole pathology of the case; nor do we say that, in the absence of effusion or disorganization, any evidence of such pressure is to be obtained merely by anatomical inspection. But we see nothing to shake our belief,—grounded on the effects of pressure from other causes, on the whole history of many cases of such affections, and on the experience of the *juvantia* and *lædèntia*,—that pressure produced in one or other of

these ways, is *one frequent, and often the most remediable, cause* of either kind, or of the combination of both kinds, of affection of the nervous system.

7. *Exsanguine state of the brain.* The existence of this condition, termed by Dr. Nasse *oligæmy*, would appear to be by no means proved. He refers to it the symptoms of excitement which sometimes occur after great loss of blood; but he allows that many of these symptoms are probably in part occasioned by the affection of the general system, and particularly of the heart; since, in many cases of animals bled to death, no deficiency of blood is found in the vessels of the brain. Diseases of the brain from this cause occur, as Dr. Nasse states, most frequently in children. Cases illustrative of this are detailed by Abercrombie and Gooch: the latter mentions expressly the remarkable emptiness of the cerebral vessels which struck him on dissection. Cases of a similar description have been observed by Armstrong, Andral, Bright, Marshall Hall, and Dr. Nasse. It occurs less frequently in the adult, but is occasionally noticed as a result of uterine hemorrhage, and where venesection has been carried to an enormous amount. It is an almost constant attendant on hypertrophy of the brain, and is not unfrequently met with in the disease which has been termed *Hydrocephalus internus*: it may affect the whole brain or only individual parts. Dr. Nasse points out the importance of discrimination in practice between the states of *oligæmy* and congestion of the brain, many of the symptoms being so similar that it requires a knowledge of the previous history and attention to the general condition of the patient before a safe diagnosis can be given. He thinks that both states may belong to the same vital condition of the brain, and doubts whether *oligæmy* can be regarded as an idiopathic disease of that organ, although many symptoms are immediately attributable to it. On this subject we shall only refer to our former observations on the relation between the functions of the brain and the quantity and impetus of the blood propelled through it.

8. *Morbid predominance of the arterial or venous system of the brain.* Dr. Nasse apologises for the introduction of the terms *arteriality* and *venosity*, by stating that he found it necessary to allude to them, as they have been frequently employed in German works on insanity and cerebral diseases, to denote certain specific conditions. Diseased arteriality of the brain is said to be that state in which there is a strong determination of arterial blood to the head, causing mental excitement, and even mania. Dr. Nasse very properly shows, however, the fallacy of attributing these effects to the cause assigned; pointing out that, in the only case where an increased impetus of the blood is known to exist from causes external to the brain,—viz. in hypertrophy of the left ventricle of the heart, the symptoms are by no means those of mental excitement. Pulsation of the carotids, which has been much relied on as indicative of this state, has been observed by our author in a case of cartilaginous degeneration of the auricle, in which the quantity of arterial blood sent to the brain must have been materially diminished; and he considers such pulsation as indicating an obstructed rather than increased motion of blood in the cerebral arteries.

The chief evidence of the existence of morbid venosity of the brain rests upon the congested state of the cerebral veins frequently observed

on dissection; but it is well known that this is no infallible proof of the existence of venous congestion during life. A very great variety of symptoms have been attributed by different writers to this cause; but none can, with any certainty, be connected with it. Dr. Nasse looks upon Dr. Abercrombie's opinion—that the quantity of blood circulating in the brain scarcely admits of any diminution, and that, when the quantity of arterial blood sent to it is diminished, venous congestion must take place,—as resting on an unproved assumption; and he refers to various experiments which prove that the quantity of blood in the brain may be diminished, and its place supplied by effused serous fluid. He mentions an experiment of Diekerhoff, in which the brain was found considerably drained of blood, without any serous effusion into the ventricles, giving colour to the supposition that the compensating change consisted in œdema of the substance of the brain itself, and concludes by observing that disease of the brain does not so much consist in accumulation of blood in its vessels, as in an altered vital condition of the brain itself.

9. *State of the brain in concussion.* Dr. Nasse claims this affection as belonging to the domain of medicine, because its existence does not necessarily include the occurrence of any palpable injury of the external parts, nor presume the necessity of an operation. We do not ourselves see the necessity of thus apologising for the introduction of such a topic; since, however desirable and convenient may be the divisions into which the practice of the healing art has been parcelled, there can be little question that the science of Pathology should include the consideration of all morbid conditions of the body; and it is of no abstract importance whether these conditions have arisen from the excess, want, or depravation of the natural stimuli to life, from the action of unusual agents of a mechanical, chemical, or vital nature, or from causes of a strictly mental character. The ascertained relations between causes and effects are in pathology, more perhaps than in any other science, the result of experience only; its laws are not yet sufficiently established, and of the influence of concurrent or interfering circumstances too little is known to enable us to proceed in a deductive course of reasoning, with any probability of success; and, in the investigation and classification of morbid processes, therefore, we are to proceed rather by what we learn by observation of their actual state and character, than by what we may suppose to be their efficient causes.

To return to our subject. Dr. Nasse observes, that the symptoms of simple concussion are very constant, and are therefore referrible to a common cause; but these are frequently united with those of laceration, effusion, &c., from which it may occasionally be difficult to separate them. He then enquires, "What is the essence of this state of the brain arising from concussion?" and expresses his dissent from the opinion of Sir Astley Cooper, Dr. Bright, and others, that the symptoms which follow it are due to derangement of the circulation. "The vessels and the blood, it is true, suffer in concussion; but they suffer, if not solely in consequence of the affection of the cerebral substance, at least only in combination with it." We think, however, that our author has somewhat misapprehended the opinion which he disputes: the affection of the circulation is not regarded as the cause of *all* the symptoms of concussion,

but only of those which most clearly distinguish it from other morbid conditions of the nervous system. He rejects the statement of Littre, that concussion produces a collapsed state of the brain; arguing, very justly, that collapse of the brain can hardly take place, even when the skull is opened, without previous loss of blood or atrophy of its substance, and that it cannot take place in the closed skull, without having the space between it and the bones filled by some other substance. He rejects also, perhaps more hastily, Brodie's conjecture that, in concussion, changes of structure take place which cannot be detected by our senses, on two grounds: first, because he considers it a mere assumption; and, secondly, because it is contradicted by the sudden recovery of persons who have laboured under concussion; and he rests, therefore, in the simple expression of the fact that it is a derangement of the vital activity or excitability of the brain. It may, we think, be reasonably questioned whether the vital properties of any organ can be immediately impaired or destroyed by an impression made upon itself, without some change of structure; and we may also observe, that Dr. Nasse seems to have left out of view that the affection of the *brain* in concussion (which is only manifested by coma, and the delirium occasionally succeeding it,) is but a part only of the result of the concussion; the enfeebled state of the circulation and the frequent attacks of spasm, which are also consequences of the injury, are more directly referrible to the spinal cord. We shall not follow him through his account of the symptoms by which simple concussion may be distinguished from that complicated with laceration or effusion, since it does not contain any peculiarly novel observations: the subject is one of acknowledged difficulty, and every one must be aware that an experienced practitioner will generally give a more correct diagnosis in such cases than one who has derived his knowledge from the profoundest closet-study.

The main object of this very interesting essay, as our readers will have perceived, is to endeavour to substitute the doctrine of altered vital conditions for that of supposed pathological states, in the classification of diseases of the nervous system. Although the remarks which we have already introduced will have shown that we frequently dissent from the author, both on general and particular questions, we hope that the care which we have taken to present his views in a definite and correct form will not be without its effect in assisting some who are engaged in pathological observations in this country, to classify and generalize the results of their experience. We entertain a high opinion of the value of Dr. Nasse's investigations; and feel sure that his statements, though in some instances liable to objection, demand careful consideration in any systematic view of the pathology of the nervous system.

We regret that we cannot now notice the other interesting essays contained in these fasciculi. The high value, however, which we attach to investigations conducted like those already commented on, will lead us to take an early opportunity of returning to the most interesting of the subjects we at present omit; particularly when we are called upon to continue our account of the researches of the industrious authors, by the publication of additional parts of their Memoirs.

ART. VIII.

Isis Revelata: an Inquiry into the Origin, Progress, and present State of Animal Magnetism. By J. C. COLQUHOUN, Esq., Advocate, F.R.S.E.
—Edinburgh, 1836. Two Vols. 8vo. pp. 395, 416.

It was our intention to take some notice of Mr. Colquhoun's strangely-named book, in one of the articles on the Physiology and Pathology of the Nervous System, given in our last two Numbers, but were prevented by want of room. On the present occasion, we do not propose to give any minute account of the work before us, nor yet to enter at large upon the consideration of the doctrines upon which it treats; but merely to hazard a few general observations upon Animal Magnetism, and with the hope rather of placing the subject in a proper point of view, than of enabling our readers to arrive at a positive conclusion in regard to it.

That a very peculiar temporary condition of the functions of the nervous system has been frequently observed, and described under the names of Somnambulism, Extase, Clairvoyance, Crisis, Reverie, &c.; that it has been produced in very various ways, and, although presenting certain pretty uniform characters, has varied remarkably in the phenomena it has exhibited in different persons and at different times,—no one who has given any attention to the subject will dispute. The points really in dispute are two: 1. Is it true that any influence can be transmitted from one individual to another, capable of producing this state of somnambulism? 2. How far is the natural condition of the functions of the nervous system, and particularly of the sensations, and of the inferences immediately deduced from the sensations, capable of being altered in such cases?

1. The first question was supposed to have been satisfactorily answered by the committee of the French Academy of Sciences, of which Bailly was reporter and Franklin a member, and which framed the well-known Report published in 1784. The decided opinion of that committee was, that no such influence, capable of transmission from one individual to another, exists; and it appears quite certain that by far the greater number of cases of somnambulism have either occurred spontaneously or been excited by mental emotions, or propagated by irritation; and that many, thought to have been owing to a peculiar transmitted influence, have been really produced in one of the two last-mentioned ways. But all this does not prove the impossibility of such an influence being, in certain circumstances, communicable from one person to another; and, when we remember that Cuvier expressed himself favorably as to the possibility of such an influence; that Andral states his belief that the state of extase "can be produced by an influence exercised by one individual on another," and that "imitation and imagination are inadequate to explain these phenomena;" and when we read the following opinion of the committee of the Royal Academy of Medicine, appointed to investigate this subject in 1826, (bearing in mind, also, the superior importance of a *positive* to a *negative* fact,) we think we are not warranted in adhering *simpliciter* to the judgment of the former committee, and holding the question decided in the negative. The Report of the Committee of the Academy of Medicine, contained in the work before us, is signed by

Bourdois de la Motte, Fouquier, Gueneau de Mussy, Guersent, Husson, Itard, J. J. Le Roux, Marc, Thillaye; and, although we should like to understand distinctly why Messrs. Magendie and Double, although appointed to the committee, did not attend at the experiments, and therefore did not sign the Report, yet we think it must be allowed that several of the names attached to it are deserving of the most respectful consideration. Their opinion as to the question now before us is expressed pretty decidedly.

"We hold it as demonstrated, that the somnambulism has been produced in circumstances in which the persons magnetized could not see, or were ignorant of, the means employed to occasion it. . . . We can not only act on the magnetized person, but even place him in a complete state of somnambulism, and bring him out of it, without his knowledge, out of his sight, at a certain distance, and with doors intervening." (*Isis*, vol. ii. p. 286.)

The committee refer to two facts observed by them, in illustration of this position, but of these the latter only seems to us of much value. This is the case of a man who had previously exhibited the phenomenon, but was kept in conversation by the members of the committee for half an hour, without any change taking place in him. "M. Foissac, the magnetiser, remained during this time in an antichamber, separated from the room where the patient was by two closed doors and at a distance of twelve feet." He then began his operations, and, after three minutes, the person acted on said, "I believe M. Foissac is there, for I feel myself stupified." At the end of eight minutes he was completely asleep, and then exhibited several of the phenomena of somnambulism. The same thing happened a second time, in the case of the same individual, (P. 266.) This fact, if standing alone, might not seem of much weight, but it is to be considered as a confirmation of many facts stated by the writers on Animal Magnetism, and which have been regarded by many as unworthy of credit.

2. The more important question, however, is as to the degree of change of the usual functions of the nervous system which may take place during the state of somnambulism. It is quite certain that the faculty of sensation, or perhaps more frequently the faculty of attention to the sensations excited, is very singularly modified. Certain sensations produce their wonted effect, and certain trains of thought succeed them; but many other impressions made on the organs of sense, which, if attended to, would interrupt these trains, are either altogether unfelt, or at least fail to produce their wonted effects, whether mental or bodily.

"The greater number of somnambulists whom we have seen were completely insensible. We might tickle their feet, their nostrils, and the angles of their eyes, with a feather; we might pinch their skin so as to leave a mark, prick them with pins under their nails, &c., without producing any pain, without even their apparently perceiving it. Finally, we saw one who was insensible to one of the most painful operations of surgery, and did not manifest the slightest emotion in her countenance, pulse, or respiration." . . . "During the greater part of the time, they are completely strangers to any external and unexpected noise which is made close to their ears; such as the sound of a copper vessel struck briskly near them, the fall of a piece of furniture, &c." (Vol. ii. p. 287.)

We have ourselves witnessed, in the cases of spontaneous somnambulism, such a degree of apparent insensibility to external impressions as

to have less difficulty in giving credit to the accuracy of the whole of this statement. In some instances it appears, as stated by Andral, that

"The magnetised person is capable of maintaining a certain kind of connexion with the external world, while otherwise completely insensible. Thus, he has been known to have answered connectedly various questions and observations proposed to him by one individual, while he remains insensible to the loudest noises, the most exciting remarks, of all the other persons about him. It is difficult not to admit that this has happened in several cases. I have not seen the fact myself, (he adds,) but I have, in the course of reading, met with several instances of it so well authenticated that I should not be justified in refusing to believe it." (*Isis*, vol. ii. p. 137.)

It is equally certain that, while there is a total failure of certain of the most usual associations of thoughts in the mind, there are, in general, certain trains of thought which the mind readily pursues, and in which it often displays an unwonted and extraordinary energy and acuteness. Lastly, it is quite certain that, in the greater number of these cases, after the fit of somnambulism is over, according to the uniform statement of the patients, there is no recollection of what had happened during it; but that, when another paroxysm occurs, the recollection of what had happened, and of the whole train of thought that had occupied the mind during the former paroxysm, is restored. We have seen cases exemplifying all these points, and we might refer to many perfectly authenticated cases, in the works of Abercrombie, (*On the Intellectual Powers*, 5th Edition, p. 314 *et seq.*;) of Darwin, (*On Reverie, Zoonomia*, chap. iii. 1, 2, 3;) and the late Dr. Dyer, (*Edinburgh Medical Transactions*, vol. ix.) &c., as clear evidence that, so far as we have hitherto described the state of somnambulism, or extase, it is of real and not very rare occurrence; sometimes complicated with curious perversions of the function of voluntary motion, sometimes without such complication; and that such modification of the functions of the organs of sense and of the mental constitution may occur without any such change in the nervous system as is incompatible with the complete, and even *instantaneous*, restoration of the healthy condition of all its functions.

But a further question remains, which some of our readers may think us absurdly credulous for entertaining at all, and on which we do not pretend to give a decided opinion,—viz. whether, in some of the individuals in this state, the usual conditions of the senses are altered, or the human mind endowed with powers of acquiring information which are denied to it during its connexion with a nervous system in the natural state?

We pronounce no judgment, as yet, on this question, further than by saying that it is one of the highest possible interest, and which it is incumbent on physiologists fairly and candidly to meet, as opportunities may occur, and decide on the evidence of sense and of testimony, independently of all previous prepossessions or opinions. It is very possible, —perhaps, after all, the most probable supposition,—that, in the cases we are about to quote from Mr. Colquhoun, some undetected fallacy or imposition exists, and that, instead of what he terms a "transference of sensations from their usual and appropriate seat to other parts of the nervous system," the information which was obtained by the persons observed really found its way through the usual channels of communication between the sensible world and the sentient soul. All that we contend for is, that, as men of intelligence and integrity, whose scientific

character was at stake in the observations they made, could not detect such fallacies,—and as we profess ourselves unable, from reading the histories, to conjecture where they had lain, we stand in need of further observations to determine the question, whether such a modification of the mental powers of sensation and perception as he supposes is really possible.*

The following are extracts from the Report of the Committee of the Academy of Medicine, the members of which have been named above.

"M. Petit was magnetised, in presence of the committee, on the 15th March, 1826, and set asleep in the space of a minute. A candle was constantly held, during the experiments, before the eyes of M. Petit, at a distance of one or two inches, and several persons had their eyes constantly fixed on his. None of us could perceive the slightest separation of the eyelids. M. Ribes, indeed, remarked that their edges were superimposed, so that the eyelashes crossed each other.†

"M. Ribes, member of the Academy, presented a catalogue which he took from his pocket. The somnambulist, after some efforts which seemed to fatigue him, read very distinctly the words, 'Lavater. Il est bien difficile de connaître les hommes, &c.'" . . . "A closed letter was presented to him: he could not discover any of its contents, though he followed the direction of the lines with his fingers. But he easily read the address, though it contained a pretty difficult name." . . . "We never ceased to examine the eyes, and to hold a candle near them;" . . . "as far as it was possible to judge by the senses, the eyelids were exactly closed."

Again:

"On the 12th January, your committee met at the house of M. Foissac, when there were present M. —, a deputy, M. de —, aide-de-camp of the king, and M. Segalas, member of the Academy. M. Foissac told us that he was going to set Paul Villagrand asleep; that, in the state of somnambulism, a finger should be applied to each of his closed eyes, and that, in spite of this complete occlusion of the eyelids, he should distinguish the colour of cards, read the title of a work, and words or lines pointed out at random in the body of the work. At the end of two minutes of manipulations, Paul fell asleep. The eyelids being kept closed, constantly and alternately, by MM. Fouquier, Itard, Marc, and the reporter (Husson,) there was presented to him a pack of new cards. . . The cards were shuffled, and he recognized easily and successively the king of spades, ace of clubs, queen of spades, nine of clubs, &c." . . . "While his eyelids were kept closed by M. Segalas, there was presented to him a volume which the reporter had brought with him. He read on the title-page 'Histoire de France.' The book was opened at the 89th page, and he read in the first line 'le nombre de ses,' passed over the word 'troupes,' and continued, 'Au moment ou on le croyait occupé des plaisirs du Carnaval.'" . . . "A piece of paper was presented to him, on which were written the words Agglutination and Magnetisme Animal. He spelt the first, and pronounced the two others, &c." . . . "In all of these experiments, the fingers were applied to the whole of the commissure of both eyes, by pressing down the upper on the under eyelid; and we remarked that the ball of the eye was in a constant rotatory motion, and seemed directed towards the object presented to his vision." . . . "At another sitting, on the 13th March, Paul attempted in vain to distinguish different cards applied to the pit of his stomach; but he read, with his eyes still closed, in a book opened at random, and at this time it was M. Jules Cloquet who kept his eyes shut." (*Ibid*, vol. ii. p. 332 *et seq.*)

* For some explanation of this phenomenon, according to the views of certain German philosophers, by a predominant and independent action of the ganglionic system of nerves, see our Review of Dr. Jahn's work in the last Number, p. 125.—Ed.

† It should be remarked that, during all these experiments, absolute silence was preserved.

The following is a quotation from the work of M. Foissac, entitled "*Cures Operees en France par le Magnetisme Animal*;" but it professes to be a *procès verbal*, drawn up, during a sitting on 7th March, 1828, by M. Ribes, Professeur agrégé at Montpellier, and signed by that gentleman and nine other medical or scientific men.

"M. Foissac having placed the Sieur Paul in a state of somnambulism, a bandage was applied to the eyes of the latter, and M. Borel, placed behind the somnambulist, pressed his fingers on the lower part of the bandage, in such a way as to interrupt the view between the stomach and eyes. M. Ribes gave him the nine of hearts, which the somnambulist placed opposite the naked epigastric region: after examining it for some minutes, he requested another card. M. Juglar gave him the king of spades, which the somnambulist named, after examining it for some minutes, without exploring it by the touch. M. Ribes then pressed his fingers on the lower part of the bandage, and M. Juglar presented to Paul the queen of hearts, which the latter named after some minutes of attention."

The bandage was then taken off, the eyelids kept closed by the fingers of different persons, as formerly, and a book and different papers, written at the time, presented to him, from which he read various words correctly.

It is to be remembered that these are not isolated cases; they are the results of careful experiments, made to test the accuracy of many previous statements of similar facts, in the same and other persons.

We add only the following statement from the American Journal of the Medical Sciences, (August, 1834.) We happen to know that this case (that of Jane Rider,) was carefully considered and repeatedly examined by many most intelligent and respectable men, and that the truth of the statement, made by Dr. Belden, seemed manifest to them.

"On the 20th November, the reporter took a large black silk handkerchief, placed between the folds two pieces of cotton batting, and applied it (to the somnambulist, during the paroxysm,) in such a way that the cotton came directly over the eyes, and completely filled the cavity on each side of the nose; the silk was distinctly seen to be in close contact with the skin. Various names were then written on cards, both of persons with whom she was acquainted and of others unknown to her, which she read as soon as they were presented to her. . . . Being desirous, if possible, to prove that the eye was actually closed, the reporter took two large wads of cotton, and placed them directly on the closed eyelids, and then bound them on with the handkerchief before used. The cotton filled the cavity under the eyebrow, came down to the middle of the cheek, and was in close contact with the nose. The former experiments were then repeated, without any difference in the result." (*Isis*, i. 377-8.)

The only explanation that suggested itself to the gentlemen who examined this case was, that the sensibility of the eyes during the paroxysms was such, that the rays of light which penetrated these bandages were sufficient to form images on the retinæ adequate for distinct vision; a supposition which is obviously inapplicable to many of the alleged cases of apparent transference of sensation to the epigastrium and other parts of the body.

We have said that we are aware many of our readers will think us absurdly credulous for dwelling at all on such cases; but, when the evidence of testimony is so strong, we think we may justly take the liberty of enquiring into the grounds of this determined scepticism. Now, the main reason of it (and certainly a very sufficient ground for incredulity and caution,) is, that, if these statements are true, not only the endowments of certain nerves, but the *conditions of certain senses*, must have

undergone a change. Those articles of knowledge which, in the natural state, we acquire only by means of inverted images on the retina of the eye, formed by rays of light passing off from external objects, and refracted by the transparent parts of the eye, would here seem to be communicated to the human mind in circumstances where these conditions cannot be fulfilled. This is undoubtedly *inexplicable* and improbable; but, before we assert that it is *impossible*, we ought to ask ourselves, Is vision by means of the inverted images on the retina explicable? Can we explain how it happens that, in consequence of images of certain forms and sizes being formed there, we acquire the knowledge of external objects of particular figures, (often very different from those of the images in question,) being placed at particular distances, and in particular directions, from our eyes? If we can *explain* how these things are taught us by the inverted images on our retinæ, or deduce those articles of knowledge, by logical reasoning, from the sensations which these images necessarily excite, then we may be entitled to say that vision, without these preliminary conditions, is impossible. But *if vision, by means of images on the retinæ, is truly inexplicable*,—if it is truly a mystery how we get the information which these images communicate to us,—how are we entitled to say that vision may not take place without these images; i. e. that the same information may not be communicated to us by some other means?

Now it is quaintly, but we believe quite justly, observed by the late Dr. Brown, that “vision is, in fact, the art of seeing things which are invisible;” i. e. of acquiring information, by means of the eye, which is neither contained in the sensations of sight themselves, nor logically deducible from the intimations which those sensations really convey. If, indeed, the acquisition of knowledge by the eye were known to be truly an *art*,—i. e. if it were only by experience and association with the sense of *touch* that we learn how to obtain information as to the distances, forms, and magnitude of visible objects, (as Dr. Brown and many others since the time of Berkeley have supposed,) we might justly question the possibility of these acquired perceptions of sight being made known to us, in any way, without a similar process of education being undergone. But we distrust part of that theory, even in relation to the human species; and Dr. Brown himself abandons it in regard to the lower animals, admitting that they are endowed by nature with the power of judging of the size, form, and distance of objects placed before their eyes, prior to all experience, and notwithstanding that these particulars are not truly objects of sight.

Even in the case of man, we apprehend that any one who has studied with attention Dr. Reid’s argument on Perception, as distinguished from Sensation, on the utter discrepancy between the notions that our minds are so constituted as to form of the primary qualities of matter, and the sensations by which these notions are suggested to our minds, (and any one who has not studied that argument is, we conceive, very incompetent to judge of this question,) must admit that the same principle applies at least to certain of our sensations, and by the inferences from them. The very notion of external and independent existence, essential to our conceptions of all external objects, the notions of extension and of hardness, are so perfectly distinct from the sensations which naturally excite them

in the mind, that they all exemplify what D'Alembert called the "*instinct prior to reason, and surer than reason*, by which we shoot the gulf which separates the sensible world from the sentient soul." In other words, we must admit the principle of *intuition* as one source of the information which we, as well as other animals, derive from the senses. Now, if we admit this principle, how are we to assign limits to its operation? If it is only by this principle of intuition, which is *truly inexplicable*, that we, or other animals, acquire part of the information from the inverted images on the retinae which they are capable of affording us, how can we judge, otherwise than by experience, whether or not circumstances may exist under which the same information may be communicated to our minds, without the intervention of any inverted images?

This we apprehend to be the strictly philosophical point of view in which these alleged instances of transference of sensations from one part of the body to another (or, more correctly, of alteration of the conditions under which the mind acquires information by the exercise of the senses,) should be considered; and if further and more decisive observations shall determine this question in the affirmative, we would regard such facts as striking and important illustrations of the truth of the principle which has been maintained by Reid and his followers,—viz. that an essential part of the knowledge which we acquire during the exercise of our senses is to be ascribed only to the constitution of our minds, leading us, *intuitively and irresistibly*, to form certain general notions, and deduce certain inferences from our sensations, which are neither contained in nor logically deducible from these sensations themselves.

If it be indeed true that, under any circumstances, the human mind can dispense with the ordinary ministration of the senses, and acquire such information as it is their office to afford, unfettered by the conditions which they impose, the circle of human science will hardly present a truth of equal interest and importance. That facts should have been observed of weight sufficient to induce many men of undoubted veracity and of high scientific acquirements to believe this truth established, is, of itself, one of the most striking events of the present age. A sound logic, as we firmly believe, is not only sufficient to establish, but demands the recognition of the immutable distinction of mind and matter, independently of any such deviation from the ordinary laws of nature; but we are not surprised that the conviction of having actually witnessed such a deviation should have impressed the mind of one previously bewildered by sophistry on this subject, in the manner which is strikingly represented in the dying declaration of M. Georget: "In my Physiology of the Nervous System I boldly professed materialism; but, scarcely was it given to the world, when new meditations on the extraordinary phenomenon, somnambulism, no longer permitted me to doubt of the existence in us, and without us, of an intelligent principle, altogether different from material existences. Let it be, if you will, the soul, or God. I have, in regard to this, a profound conviction, founded on facts which I believe to be incontestable. This declaration will not see the light until there can be no longer any doubt of my sincerity, or any suspicion of my intentions."

We have left ourselves no room to consider the other alleged faculties of certain somnambulists,—their alleged powers of perception at incredible

distances, and of divination and prophecy. In so far as the prophecies relate to their own health, they are obviously very liable to suspicion; and, in so far as they relate to the actions of others, we think the evidence generally unsatisfactory; and, on the whole, the pretension to these powers seems to us to weaken rather than strengthen the claims of the narratives before us on our belief. We shall only further add, that it is as physiologists and pathologists that we regard the subjects of somnambulism and animal magnetism as of the highest interest and importance. The state of the living body thus designated is decidedly and seriously morbid; and, although we do not doubt that, in certain states of the system, it may be excited with good effect, we cannot suppose that any rational physician, who knows what are the physical evils that most afflict humanity, and "what can be done and what cannot be done" by his art, can ever expect the artificial excitement of it to be safely and beneficially employed, as a remedial agent, on more than a very small number of cases of disease.

ART. X.

An Exposition of the Signs and Symptoms of Pregnancy, the Period of Human Gestation, and the Signs of Delivery. By W. F. MONTGOMERY, A.M. M.D. M.R.I.A., Vice-President and Professor of Midwifery in the King and Queen's College of Physicians in Ireland.—*London*, 1837. 8vo. pp. 344.

THERE are few works the announcement of which we have welcomed with such cordial pleasure as that of the one to which we now call the attention of our readers. The name of its accomplished author has for some time past been enrolled among those which adorn the highest ranks of the profession. He is known not merely as a successful teacher and practitioner, but as the author of a considerable number of valuable essays on subjects connected with his own department of medicine, and more especially for an admirable dissertation on the Signs of Pregnancy and Delivery, published in the "Cyclopædia of Practical Medicine." The reader must not suppose that the present work is merely an enlarged reprint of the above essay, it having been, as the author informs us in his preface, "almost entirely rewritten, with the addition of such new matter as the writer's observations and further experience enabled him to contribute, conjoined with such information from other sources as appeared consonant to truth, and likely to be useful in practice," (p. vi.) and, in justice to him, we feel bound fully to confirm this observation in every respect.

The work may be considered as being divided under five heads: 1st, the Diagnosis of Pregnancy; 2dly, Investigation of the Uterus and its Appendages after Death; 3dly, on the Period of Human Gestation; 4thly, on the Signs of Delivery; 5thly, on the Spontaneous Amputation of the Fœtal Limbs. In this order we propose to consider it, and promise ourselves the pleasing task of giving a succinct but complete digest of its whole contents. The diagnosis of pregnancy has occupied much of our attention, and we will freely confess that there are few occasions

on which we have felt so much painful uncertainty as in cases of this sort where circumstances have combined to render our examination difficult and our conclusions doubtful.

Dr. Montgomery devotes his first Chapter to "General Observations on the State of the Female System during Pregnancy;" and, in pointing out the various sources of derangement to the health at this period, he gives the following correct remarks:

"It has been already noticed that the state of pregnancy is one of increased vascular action, not only in the great organ primarily affected, but generally throughout the system, by which a disposition is created to certain affections indicative of plethora, and best alleviated by venesection or other depleting measures. This natural tendency to redundancy during this state is too often cherished and increased, to the great prejudice of the woman, by mismanagement of her diet, neglect of the state of her bowels, and the want of proper and sufficient exercise, all of which mutually react upon each other, each rendering the effect of each still more decidedly injurious. It cannot escape observation that, during gestation, the activity of the alimentary canal is almost always greatly impaired, and hence one strong reason is suggested for greater caution in selecting food of a proper kind, and for restriction in its quantity. Nature, as a safeguard, resorts to vomiting, thereby, as it were, declaring her opinion that there is something superfluous in the system, the evacuation of which is not only beneficial to the parent, but subservient to the welfare of the child, which we know is but too surely threatened when, in the early months, the disposition to vomit suddenly subsides. The popular prejudice on this subject is, that a pregnant woman, having two to feed, ought to swallow a double supply of nutrition; while nature declares the exact contrary, by disposing her to reject a large proportion of what she takes, and making her averse from any of the richer kinds of meat, which at other times she would eat with pleasure. Moreover, experience has shown that the perfection of the fœtus, either as to health or size, depends very little on the quantity of nutriment supplied to the mother during gestation: hence the attempts that have been made to restrain the growth of the child, by diminishing the food of the mother, have not only signally failed in accomplishing the object intended, but the children have been, in some of the trials, unusually large and well-thriven." (P. 9.)

Experience has shown the correctness of this remark: hence we find that, in cases of far-gone phthisis, where the powers of the system appear to have just sufficed to complete the process of gestation, and then sink exhausted, the child is usually remarkably large, stout, and well developed. We have already made this remark in our Review of Professor Kilian's work (No. VI., April, 1837, p. 415,) and may add that phenomena of a similar nature are observed in the vegetable kingdom.

In speaking of the effects produced by an overloaded state of the circulation in pregnancy, the author considers that "inordinate secretion of the liquor amnii," with its consequences, "are evils which will be the more surely entailed if, at the same time, the state of the bowels be neglected." We can scarcely agree with him in this remark, because, in young robust primiparæ, where the circulation so frequently requires reduction by the lancet, we do not observe an unusual distention of the uterus from this cause more frequently than in a very opposite class of patients. He proceeds to give some excellent observations on the advantages of proper exercise, diet, and good air; and points out the great susceptibility of the nervous system to external impressions during pregnancy, and the danger arising from exposure to strong "mental or moral emotions" at this period. "Neither should they (the patients) be permitted, if possi-

ble, to see disgusting objects; for, although no injury may be thereby done to the child, their minds are apt to remain much troubled with anticipations of some deformity or disfigurement likely to ensue." Now, in reference to this matter, but without meaning in any way to advocate or countenance either the indiscriminate doctrine of effects produced by the mother's imagination, or the absurd fabrications by which it has been attempted to maintain it, we cannot help thinking it quite consistent with reason and the present state of our knowledge, to believe that a very powerful impression on the mother's mind, or nervous system, may injuriously affect the fœtus; and it will, at least, be always safe and prudent to act on such a presumption, for "although," to use the words of Morgagni, "I do not approve these things, (that is, the absurd stories,) there are cases where it seems to me to be very hard to depart totally and altogether from that opinion which is common to the greatest men." We are very far from wishing to treat this subject lightly or with ridicule: the mysterious changes and derangements of development which are so frequently observed to occur during embryotic and fœtal life, are phenomena which, in the present state of our knowledge, defy our utmost endeavours to explain; but they are not the less deserving of attention, and it is only by a careful investigation that we can ever hope to arrive at a correct knowledge of their nature.

Dr. Montgomery's remarks on the nervous irritability and mental depression which are sometimes so distressing, both to the patient and her attendants, at this period, are well worthy of attention.

"Occasionally, however, the depression assumes a more serious aspect, and the woman is constantly under the influence of a settled and gloomy anticipation of evil, sometimes accompanied with that sort of apathetic indifference which makes her careless of every object that ought naturally to awaken an interest in her feelings; a state which we sometimes observe in fever and other severe disorders, in which it is justly considered a most unfavorable symptom. When this occurs in pregnancy, it will generally be found accompanied by very evident derangements in bodily health: a dull heaviness or aching of the head; a loaded tongue, with bitter taste in the mouth; constant nausea, costiveness, and a foul state of the alvine discharges; with not unfrequently a bilious tinge in the skin, and other symptoms indicating hepatic derangement, together with a quick pulse and a hot dry skin, constitute a group of symptoms likely to be present, and which urgently demand attention for their removal before the time of labour; otherwise serious consequences are to be apprehended." (P. 19.)

There can be no doubt but that the medical man has it frequently in his power to procure much relief for a patient by judicious treatment and by carefully investigating the various sources of irritation on which this state of mind is depending. The conditions of the digestive organs demand here especial attention. The subject is illustrated by numerous interesting cases, which cannot fail to excite attention and impress the various truths more forcibly upon the student's mind.

After describing the various derangements of the health which are apt to affect a patient during pregnancy, the author truly points out the beneficial effects which pregnancy exerts on the female system.

"It appears from experience that women who bear children generally enjoy more even health, and are less disposed to disease, than those who lead a life of celibacy, or who, having married, remain unfruitful. Indeed, I think we have sufficient evidence to justify the belief that pregnancy acts in a great degree as a

protection against the reception of disease, and apparently on the common principle that, during the continuance of any one very active operation in the system, it is thereby rendered less liable to be invaded or acted on by another." . . . "I had a patient under my care some years ago, affected with white swelling of the elbow-joint, which had gone to a great length, and was very little benefited by treatment, when, all of a sudden, a very rapid amendment was observed: on questioning the lady, I found that she had reason to think herself about six weeks pregnant, which was the fact. From that time the cure advanced uninterruptedly, so that before the end of her gestation the arm was perfectly well, and has continued so ever since." (P. 25.)

In speaking of the difficulties with which we have so frequently to contend in the diagnosis of pregnancy, Dr. Montgomery justly observes, that there are "few questions which impose on the medical examiner a more delicate duty, or a more trying responsibility, than the determination of the existence or absence of pregnancy, placed before him, as the question generally is, under circumstances by which all its natural difficulties are increased a hundred-fold." (P. 30.)

"The pertinacity and apparent innocence with which pregnancy is denied under such circumstances would be quite incredible, and almost certainly mislead us, were we not taught scepticism from experience; having so often disclosed to us that, in the indignant burst of offended chastity, and the deep asseveration of unspotted purity, we were, after all, to recognize the solemn protestation of a lie." (P. 31.)

With regard to the suppression of the menses as a sign of pregnancy, we fully agree with the author that, although we are "justified in adopting as a general rule that, in healthy women, whose menstruation has been established and continued regular, and who are not nursing, conception is followed by a suppression of the menstrual discharge at the next return of its period," (p. 41;) this symptom by itself merits, nevertheless, but little confidence. The fact that conception may take place before menstruation has made its appearance at all, or before its return after previous labour; and, on the other hand, that this discharge may continue to appear regularly *during* pregnancy, even up to the full time,—and yet without the smallest derangement of health,—are duly noticed by the author, and rendered interesting by cases and by much valuable literature. The name of Dionis, which has not been quoted, might have been advantageously substituted for some two or three of the more modern French obstetric authors, the more so as few have devoted so much attention to this subject as he has done. The remarkable cases of menstruation occurring *only during pregnancy*, as recorded by Deventer, Dewees, &c., are also noticed. The appearance of the catamenia *during* pregnancy, although opposed by Dr. Denman, and also very recently by Dr. Hamilton, has been noticed, nevertheless, by all the eminent authorities of former times; more especially by Dionis, from whom our author will find that the passage which he has quoted from Gardien is more or less taken. Dr. Hamilton's attempt to "throw discredit on all the cases of non-suppression during pregnancy" is futile. The observations of Dr. Dewees on this subject would of themselves be quite sufficient to neutralize it, even if we had no other authority to refer to. The correctness of this fact, however, has been maintained and confirmed by authors of the highest authority, both ancient and modern, and it is one which has so frequently occurred under our own notice that we have long since ceased to regard it as a circumstance of any rarity.

Dr. Montgomery's fourth Chapter is devoted to a consideration of the Mammary Sympathics, the Characters of the Areola, &c. To this subject, we are aware, that he has directed much attention. His observations in the "Cyclopædia of Practical Medicine" bear the marks of much observation and experience; and, in the present work, where the extent of his remarks was not subjected to the same unavoidable limitation of space as in the Cyclopædia, he has been enabled to bring forward a larger mass of information, and consequently render it much fuller than before. He has, moreover, illustrated his descriptions of the areola at different months of pregnancy by a series of very beautifully coloured lithographic engravings, from drawings which, we are told, have been superintended by Dr. Carswell, whose master-hand in this respect has long been acknowledged. That the changes of the areola have not only excited attention from the most eminent men of the last century, but were considered by them as valuable evidences of pregnancy, is proved by the remarks of Smellie, W. Hunter, and Røederer. The description which the last-mentioned author has given of these changes is celebrated as a specimen of accurate description, and ought to be familiar to every one who is desirous of understanding this important piece of diagnosis.*

"I cannot say positively," observes Dr. Montgomery, "what may be the earliest period at which this change can be observed, but I have recognized it fully at the end of the second month, at which time the alteration in colour is by no means the circumstance most observable, but the puffy turgescence, (though as yet slight,) not alone of the nipple, but of the whole of the surrounding disk, and the development of the little glandular follicles, are the objects to which we should principally direct our attention; the colour at this period being in general little more than a deeper shade of rose or flesh colour, slightly tinged occasionally with a yellowish or light brownish hue. During the progress of the next two months, the changes in the areola are in general perfected, or nearly so, and then it presents the following characters:—A circle around the nipple, whose colour varies in intensity according to the particular complexion of the individual, being usually much darker in persons with black hair, dark eyes, and sallow skin, than in those of fair hair, light-coloured eyes, and delicate complexion. The extent of this circle varies in diameter from an inch to an inch and a half, and increases in most persons as pregnancy, as does also the depth of colour." (P. 60.)

"In the centre of the coloured circle, the nipple is observed partaking of the altered colour of the part, and appearing turgid and prominent; while the surface of the areola, especially that part of it which lies more immediately around the base of the nipple, is studded over and rendered unequal by the prominence of the glandular follicles, which, varying in number from twelve to twenty, project from the sixteenth to the eighth of an inch; and, lastly, the integument covering the part appears turgid, softer, and more moist than that which surrounds it, while on both there are to be observed at this period, especially in women of dark hair and eyes, numerous round spots or small mottled patches, of a whitish colour, scattered over the outer part of the areola, and, for about an inch or more all round, presenting an appearance as if the colour had been discharged by a shower of drops falling on the part. I have not seen this appearance earlier than the fifth

* We quote the passage in a note at length, in order that our younger professional brethren may have the opportunity of reading it. "*Menstruorum suppressionem mammarum tumor insequitur, quocirca mammae crescent, replentur, dolent interdum, indurescunt; venae earum ceruleo colore conspicuae redduntur, crassescit papilla, inflata videtur, color ejusdem fit obscurior, simili colore distinguitur discus ambiens qui in latitudinem majorem expanditur, parvisque eminentiis, quasi totidem papillis, tegitur.*"—*El. Artis Obstet.* p. 46—Rev.

month, but, towards the end of pregnancy, it is very remarkable, and constitutes a strikingly distinctive character exclusively resulting from pregnancy. The breasts themselves are at the same time generally full and firm, at least more so than was natural to the person previously, and venous trunks of considerable size are perceived ramifying over their surface, and sending branches towards the disk of the areola, which several of them traverse. Along with these vessels, the breasts not unfrequently exhibit, about the sixth month and afterwards, a number of shining, whitish, almost silvery lines, like cracks: these are most perceptible in women who, having had before conception very little mammary development, have the breasts much and quickly enlarged after becoming pregnant." (P. 61.)

So much for the "affirmative part of the question," as the author calls it: let us now reverse the page, and observe the other side.

"In the first place, then, pregnancy may exist, and the areola remain deficient in at least one of its usually essential characters; and that the one too generally supposed to be its most important distinctive mark,—namely, the colour. The writer has seen several well-marked instances of this: one in a lady of very fair skin, blue eyes, and light hair; the other in a lady of fair skin, but with black hair and very dark brown eyes; in both the colour of the areola was so slight as hardly to differ from that of the surrounding skin, and certainly was less distinct than I have frequently seen it in the virgin, but all the other characteristic changes enumerated were well developed in both." . . . "In some, the mammary sympathies are almost entirely wanting, or at most very feebly exerted, even though gestation should be proceeding healthily; and it should be added that, even when there is no such deficiency in the mammary changes and areola, should the fœtus be blighted, the characters of the latter will soon decline and fade away." (P. 63.)

The author has not sufficiently noticed the changes of the areola occasionally produced by organic disease of the uterus or by dysmenorrhœa, (changes which simulate those of pregnancy exceedingly;) nor do we know by what characters an areola arising from either of these causes can be distinguished from that of actual pregnancy during the early months. The inflated appearance of the integument about the papilla, and the mottled colour of the skin at the edge of the disc, during the latter half of pregnancy, have seemed to us to be the most uniform in their appearance, and those which are most peculiar to the gravid state. From our own experience, we are disposed to consider the appearance of milk in the breasts, in cases of uterine disease or irritation, to be of much more common occurrence than the author appears to suppose, and agree with him in placing no confidence in it as a sign of pregnancy.

Dr. Montgomery's views respecting Quickening (which forms the subject of the fifth Chapter,) are very just.

"I wish," says he, "in the first place, to observe, that I use the word quickening reluctantly, and only in compliance with a long-established usage, because, in its literal and proper meaning, it was adopted from the old and barbarous idea that, at a certain period of gestation, life was suddenly infused into the fœtus; an error which the continued use of the term is obviously calculated to foster and prolong. I would, then, be understood as meaning by it no more than the first sensation experienced by the mother of the life of the child within her womb, and not that the child then becomes for the first time endowed with life; which is, however, the notion still generally prevalent in society." (P. 75.) . . . "It is perfectly monstrous and absurd to suppose for a moment that the fœtus does not enjoy vitality from the first moment of its existence, and of course long before the sensation of quickening is felt by the mother; and, if it be asked why no indications of life are given before the time at which quickening generally takes place, the obvious answer is, that the

absence of any consciousness, on the part of the mother, relative to the motions of the child, is no proof whatever that such motions do not exist." (P. 77.)

In these points we fully agree with the author in attaching no importance to quickening in the diagnosis of pregnancy. The movements of the child may be influenced by so many causes, and the sensation of it by the mother so easily simulated, that we seldom take the trouble of even questioning a patient upon this subject; feeling justified, from ample experience, that the absence or presence of the sensations of the child's movements to the mother, during the early months of pregnancy, is a symptom on which not the smallest confidence can be placed. "Occasionally," says Dr. M., "circumstances, whose influence it would be very difficult, if not impossible, to explain, appear to have the power of suspending foetal motion, without, however, inflicting any injury on the child," (p. 81;) and he illustrates this by two interesting cases, to which we could have added others from our own practice. It is a well-known fact among practitioners, that, in patients in whom there is a great disposition to premature expulsion, and in whom much care is requisite during the whole period to prevent it, the movements of the child will suddenly cease on the appearance of any threatening symptoms, and will return in a few days upon their removal; and that this will sometimes occur several times during the same pregnancy.

The entire absence of the child's movements during the whole period of utero-gestation, must not be looked upon as indicating the non-existence of pregnancy; nor can the entire cessation of the child's movements, where they have been distinctly felt at an earlier period, be considered as a sign of its death. Dr. Montgomery quotes some cases where no movement was felt at all during pregnancy; and a similar one occurred to our notice only a few days before writing these observations. A healthy young woman requested our opinion as to whether she was pregnant, and, if so, whether the child was alive; for, during the whole period of her supposed pregnancy, she had not felt the slightest movements of the child. We could not succeed in feeling any, after careful and patient examination of the abdominal parietes, but, on applying the stethoscope, we instantly recognized the uterine souffle; and, after shifting the instrument a few times, we detected the sound of the foetal heart.

The contents of Chapter vi. are comprised under the heads of "Enlargement of the Abdomen and State of the Umbilicus." To our surprise, the author has adopted the old, and we believe erroneous view, that, during the first two months of pregnancy, the uterus actually descends lower into the cavity of the pelvis. By this he explains the flatness of the abdomen at this period; although, in the next chapter, where he speaks of the os and cervix uteri, he does not attempt to give a similar explanation to the well-known fact, that, during the second month, the os uteri is more easily reached than at any other period of pregnancy. The circumstance is indeed mentioned, but no further notice taken of it. The os uteri being low in the pelvis does not, however, arise from the descent of the uterus itself, but simply, as Madame La Chapelle has correctly shown, from its having increased in size, and its fundus not yet having ascended out of the pelvis. We have also reason to believe that the feeling of dragging from the umbilicus, and flatness of the abdomen, does not arise from any descent of the uterus, but from its fundus,

which has now become more heavy, gravitating backwards, and thus inclining towards the posterior walls of the pelvis. So long as the uterus preserves the direction peculiar to the virgin state,—viz. with the fundus somewhat inclined backwards, and the os uteri rather forwards,—the small intestines will continue to rest upon it, and for a while prevent its rising, (a period at which the liability to retroversion is known to be greatest;) but, as it increases in size, the broad ligament necessarily became shorter, being gradually more and more expanded over the increasing uterus; the intestines, confined by the mesentery to the spine, soon slip down behind the fundus, which, now freed from its superincumbent pressure, rises through the brim of the pelvis, in a direction upwards and forwards.

In giving directions for conducting an examination of the abdomen, we regret that Dr. M. has not quoted at length the precise and very excellent rules which Rœderer has given upon this subject, or the translation of them in the admirable work of W. J. Schmitt, with which he has shown himself so well acquainted: the directions for making the patient breathe deeply, and for seizing the opportunity of pressing the hand upon the abdomen during expiration, would not have been omitted. We have ourselves quoted the passage alluded to in our Review of Prof. Hohl's work, No. I. p. 108.

With regard to the changes which the umbilicus undergoes, there can be no doubt that, generally speaking, the depression of which it consists begins to diminish about the fifth month; that the folds of skin which form the future umbilicus disappear during the sixth month, and that, after the seventh, it begins to project from the surface of the abdomen; still we can by no means agree with the following remark:

"I do not know of any single instance in which the gravid uterus had acquired such a size without elevating the umbilicus; so that, in any case in which pregnancy is supposed to be advanced to the seventh or eighth month, if we find the umbilicus depressed and the belly flat, it will prove certainly that gestation has not advanced to such a period; although it will not be, as asserted by Dr. Gooch, decisive evidence against the existence of pregnancy, which may be present, but not sufficiently advanced to effect the change, or the uterine development may have been arrested by the death of the fœtus." (P. 98.)

In answer to this quotation, we can only state that we have seen the umbilicus without the slightest diminution in the degree of its depression or in the state of its cuticular folds, only a few days before delivery at the full term.

In describing the Os and Cervix Uteri, in the unimpregnated state, Dr. M. remarks:

"In the virgin and unimpregnated condition of the uterus, its mouth and the lower section of its neck, when examined by the finger introduced into the vagina, can be felt projecting into that cavity from a quarter to half an inch. The part so projecting feels remarkably firm, is slightly tapering or conical in form, and about as large as the end of a man's thumb, having in its termination in the vagina a transverse opening, whose lips or margins feel firm and well defined." (P. 99.)

With this description we are perfectly satisfied, but cannot agree with him where he goes on to state as follows:

"Sometimes the os uteri differs very considerably from this description, being almost imperceptible from its diminutive size, and perfectly circular; and it is not

very rare to find it opening at once from the upper extremity of the vagina, without any projection of the cervix uteri into that canal, which to the finger seems to taper gradually to a point, and there terminate in the orifice of the womb, the margins of which are very indistinctly felt. This form of the part is, I believe, in most cases, produced by childbearing: at least, I have very seldom met with it except in women who have had a family." (P. 100.)

We cannot call to mind a single instance of *healthy* os uteri opening at once, without any projection of cervix from the upper extremity of a vagina, which gradually diminished in caliber, as just quoted: that we have felt this state frequently, we readily allow; but it has been connected either with atrophy of the uterus, congenital malformation, or diseased growth. Still less can we agree with the author's last observation,—viz. that of its being produced by childbearing,—since a very contrary effect is known to be produced; the cervix becoming more bulky, and the lips of the os uteri thicker and larger.

In the impregnated state, "the cervix is felt fuller, rounder, and softer, or more springy and elastic, under the point of the finger; and the same alterations having taken place in the labia of the os uteri, this part communicates a corresponding difference in the sensation received by the finger of the examiner: the margins of the orifice feel tumid, but softer and much less distinct, having lost the well-defined edge which, in the unimpregnated organ, is natural to them, and acquired in its stead a peculiar lubricity, in consequence of the increased secretion from the muciparous glandulæ in that situation; while the orifice itself, instead of seeming transverse, *feels* as if it were circular, because it has become more yielding, and admits the tip of the finger more easily and to a greater depth than in its former state." (P. 101.) We look upon the soft cushiony feel which the cervix and os uteri communicate, as a very important change connected with pregnancy, which has more than once assisted us in detecting its presence when complicated with disease; but we regret to be compelled to again express our dissent from the author's last observation. The os uteri, in the primipara, not merely becomes circular during the second month, but is closed by the plug of tough gelatinous substance which is secreted by the glands of the cervix; so that it rather feels like a circular dimple at the end of the cervix, and therefore will be evidently incapable of admitting the tip of the finger *at all*. Still less can we allow the correctness of his remark in the following page: "We can now, also," (alluding, we presume, to the fourth or fifth month,) "introduce the finger with great ease to a considerable depth into the cavity of the cervix, owing to the very yielding condition of the labia of the os uteri." (P. 102.) That the os tincæ or os uteri externum is found more or less open during the latter months in multiparæ, we do not deny; and we occasionally feel it somewhat open in primiparæ, where the patient has been much weakened by leucorrhœa. Nor does it, in our opinion, during the last weeks of pregnancy, feel like "a mere rugous opening in the mucous membrane at the upper part of the vagina:" if the patient be pregnant for the first time, it feels like a soft circular dimple in the inferior and posterior surface of the globe which the uterus now forms. There is no rugosity if, on the other hand, she be a multipara; there will be, it is true, an opening, the edges of which are uneven, irregular, and hard in places, from the cicatrices of former

labours, but still it will not feel like an opening "in the upper part of the vagina," because now there will be a portion of the cervix still remaining, which will continue so up to the very commencement of labour. In many cases, where the patient has borne many children, the cervix at the end of pregnancy is more bulky than in the unimpregnated state, being nearly as long and much thicker. Before quitting this subject we have one more quotation to make and to comment upon :

"Nothing is more certain than that there is great variety in this respect" (the length of the cervix,) "in different individuals, some women having the cervix double as long as others; owing to which, and also to the fact that this part, though of ordinary length and healthy, yields much more slowly in some than in others, it happens that more of it will be found undilated in one woman at the eighth month than in another at the sixth; this will be, *cæteris paribus*, most likely to happen in first pregnancies, and hence it is that we not unfrequently find a portion of the cervix amounting to nearly a quarter of an inch undilated, and projecting at the commencement of labour, while at other times the whole cervix is obliterated, and the os uteri considerably opened, one, two, and even three weeks before delivery." (P. 105.)

Dr. Montgomery has entirely omitted to point out the difference between the os uteri of a primipara, and one who has borne children, a diagnosis of great importance, without an accurate knowledge of which we are unavoidably exposed to many apparent contradictions, which create much confusion. To inattention to this point we can alone attribute the assertion just quoted, viz. that the cervix, in first pregnancies, is not unfrequently found projecting nearly a quarter of an inch in the vagina at the commencement of labour, a statement which, in primiparæ, at the full term of utero-gestation, we must strongly dissent from.

The variations in the size of the uterus, during the different months of gestation, are correctly stated; but they are so well known as to require no comment on our part.

We cannot correctly understand why the examination, per vaginam, in the upright posture, is such "a very objectionable mode of proceeding" as the author considers it to be. Wherever we expect any difficulty in forming our diagnosis, especially where, from the period of pregnancy, or other causes, we wish to take advantage of the weight of the organ as much as possible, we hold it to be very important to examine in this position. The rules for conducting this mode of examination we have mentioned in our first number, p. 105.

The observations on the "Application of Auscultation" are good, although rather meager, and contain little or no original information. An apparent inconsistency strikes us at p. 124, where the author says, "We have the very highest authority for believing that the formation of a correct judgment by their means" (sounds,) "requires more care, and is beset with greater difficulties, than are found in investigating all the diseases of the chest." He then observes, three lines further on, "to make this examination it is by no means necessary that we should be practised stethoscopists, or even use the stethoscope at all, since the naked ear will detect the sounds sought for with perfect accuracy, but the use of the tube is for many reasons preferable." (P. 124.) We hold auscultation to be of *great* importance in the diagnosis of pregnancy. In the words of a reviewer of the author's excellent article on this subject,

in the *Cyclopædia of Practical Medicine*, we may truly say, "When all the ordinary symptoms of pregnancy are absent, or so muffled and obscured as to afford scope only for conjecture, if the foetal pulse can be heard but once unequivocally, the nature of the case is obvious beyond cavil; the auscultator need not heed the discordant opinions of others, for what more can he desire than to have held converse, as it were, with the very being whose existence is disputed."

We fully agree with the author in rejecting the modes of detecting pregnancy recommended by M. Nauche, Professor Kluge, &c. &c., the one being the introduction of a species of auscultating tube, called *metroscop*, into the vagina, up to the os uteri, the other the inspection of the inner surface of the vagina, to ascertain the presence of a bluish tinge, which is considered by the latter author and M. Jacquereau of Paris as a proof of pregnancy,—modes of examination which, even putting aside the outrage upon the patient's feelings, have been proved to be very far from infallible.

Chapter ix. contains the examination of substances expelled from the uterus, connected with or simulating pregnancy. In speaking of the decidua which covers an early ovum, Dr. Montgomery has pointed out some peculiarities which, in justice to him, we will give in his own words:—

"Repeated examinations have shown me that there are on the external surface of the decidua vera, a great number of small cup-like elevations, having the appearance of little bags, the bottom of which are attached to, or imbedded in, its substance; they then expand, or belly out a little, and again grow smaller towards their outer, or uterine end, which, in by far the greater number of them, is an open mouth when separated from the uterus; how it may be while they are adherent, I cannot at present say. Some of them, which I have found more deeply imbedded in the decidua, were completely closed sacs. Their form is circular, or very nearly so, they vary in diameter from a twelfth to a sixth of an inch, and project about the twelfth of an inch from the surface of the decidua. Altogether, they give one the idea of miniature representations of the suckers of the cuttle-fish." (P. 133.)

To these observations Dr. Montgomery has appended the following note, which we have read with great interest:

"I confess," says he, "I am not prepared (nor, indeed, is this the place,) to offer any very decided opinion as to the precise nature or use of these decidual cotyledons, for to that name their form, as well as their situation, appears strictly to entitle them; but, from having, on more than one occasion, observed within their cavity a milky or chylous fluid, I am disposed to consider them reservoirs for nutrient fluids, separated from the maternal blood, to be thence absorbed for the support and development of the ovum." (P. 134.)

Although these remarks are, perhaps, as the author admits, rather foreign to the present subject, still they are too interesting and important to have allowed us to pass them unnoticed. The fact of a milky fluid being found in the venous absorbing radicles of the chorion, at an early period of pregnancy, has been noticed by several authors of the last century, and points out one very important means of foetal nutrition. Respecting the source of this fluid little or nothing, as far as we are aware, had been known, so that we may look upon these observations of the author as a valuable contribution to this branch of human physiology.

Chapter x. commences with a very good account of the various

idiosyncrasies and anomalous symptoms which are observed in some individuals during pregnancy, and occasionally are very useful in assisting our diagnosis of this condition. We could have mentioned a few more besides those which the author has enumerated, if it had been necessary, for they are almost infinite in point of number and variety: Dr. Montgomery has shown extensive reading upon this subject, and has given a considerable number of interesting cases. We are surprised that he has entirely passed over in silence the observations of Professor Hohl on this subject; they are, it is true, exceedingly minute, and in some places uselessly so, but still they contain much curious information on this subject.

The author dissents from the generally entertained opinion "that the blood of pregnant women *always* presents the buffy coat, and other characters of inflammation," and the result of our own observations would lead us, in great measure, to agree with him, inasmuch as we have not unfrequently met with an entire absence of this appearance in pregnant women; on the other hand, we have repeatedly seen the buffy coat well marked, and without the presence of inflammatory action. We are inclined to believe that this appearance exists chiefly during the very early months of pregnancy, at a period when the "formative nîsus" is in full energy, and where a copious supply of plastic fibrinous material is required for the development of the embryo; the author, in fact, comes to this conclusion a little further on, where he says, "I must add that, at those periods, that is, up to the third or fourth months, the blood will be found, in the great majority of instances, presenting the modified characters of inflammation; especially in those whose pulse is much accelerated, or who are of a full habit, or sanguine temperament: but if this be asserted as a general rule, applying to every period of gestation, the exceptions will be found very numerous indeed." (P. 156.)

The peculiar milky turbid appearance which is observed in the urine of pregnant females, which has been lately noticed by M. Nauche, and originally observed, it would appear, by Savonarola, in 1486, is also treated in the same cautious and rational manner:

"I have myself tried it (says Dr. M.,) in several instances, and the result of my trials has been this—in some instances no opinion could be formed as to whether the peculiar deposit existed or not, on account of the deep colour and turbid condition of the urine; but, in the cases in which the fluid was clear and pregnancy existing, the peculiar deposit was observed in every instance. Its appearance would be best described by saying that it looks as if a little milk had been thrown into the urine, and, having sunk through it, had partly reached the bottom, while a part remained suspended and floating through the lower part of the fluid, in the form of a whitish semi-transparent filmy cloud. In some cases in which pregnancy was suspected, but did not exist, no such deposit was observed: but it is superfluous to say that there is such a host of accidental causes, capable of altering the condition of the urine, as ought to make us very cautious indeed how we venture to attach credit to a symptom so equivocal." (P. 157.)

The observations on pregnancy at a very early or advanced age, with which the eleventh Chapter commences, although perhaps not exactly belonging to the professed object of the work, are, nevertheless, exceedingly interesting, and well worth perusal. We have ourselves delivered a patient at the age of thirteen, and superintended that of another at the age of fourteen: in both cases the child was born alive. In the first case

labour came on at the eighth month, and was completed during severe puerperal convulsions; there was but little trace of mammary development at first, and the patient's mother (herself a very young woman, and nursing an infant,) supplied her grandchild until the secretion of milk was duly established.

The observations on *spurious pregnancy* are very judicious, and bear reference to a condition of the female system which is by no means an unfrequent occurrence, and which but too often subjects the patient to a most disheartening discrepancy of opinion, and injurious variety of medical treatment:

"It is necessary," says Dr. Montgomery, "to notice here a condition of the female system of a remarkable kind, most frequently observed about the turn of life when the catamenia, becoming irregular, previous to their final cessation, are suppressed for a few periods, and at the same time, the stomach being out of order, nausea or vomiting is experienced, the breasts enlarge, become sensible, or even slightly painful, and sometimes a serous or sero-lactescent fluid exudes from the nipples and orifices of the areolar tubercles; the abdomen grows fuller and more prominent, especially in women of full habit, and constitutionally disposed to *embonpoint*; and the abdominal enlargement progressively increases, partly from disposition of fat in the integuments, and in the omentum, but still more from distension of the intestines by flatus, which, passing from one part to another, communicates a sensation like that produced by the motion of a foetus; the nervous system is generally much disturbed, and the woman feels convinced that she is pregnant; an idea which, at the time of life alluded to, is cherished by the sex with extraordinary devotion, and relinquished with proportionate reluctance; and not unfrequently at the end of the supposed gestation the delusion is rendered complete, and almost assumes the character of reality, by the occurrence of periodical pains, strongly resembling those of labour." (P. 169.)

Similar observations have been made by W. J. Schmitt of Vienna, who quotes at length a very remarkable case of this sort, described by Klein of Stuttgart, to which Dr. Montgomery also alludes.

The twelfth Chapter commences with the investigation after death, and contains a minute account of the changes which are produced in the ovaries by conception. The consideration of this subject is one of great importance, and still presents a field for much discovery. We are aware that the author has devoted much time and attention to the practical investigation of this branch of Physiology; his sound and excellent observations on this subject have long been highly appreciated by us, and the present remarks have been rendered still more interesting by numerous coloured engravings:

"The vesicle, after impregnation, may really be said to become, with regard to the contained germ, a sort of little temporary uterus, lined with a serous membrane, covered externally by another, and having interposed between them the fleshy, or glandular structure of the corpus luteum, through which blood-vessels ramify, and exhale through the lining membrane a serous fluid for the support of the early ovum, which as yet lives by imbibition." ... "It will appear very obviously, from the above description, that I believe the corpus luteum to be surrounded, externally, by the outer membrane of the Graafian vesicle, while its cavity is lined by the inner membrane of this vesicle; the corpus luteum being, in fact, inclosed between these two membranes, and its substance pervaded by the small vessels passing from the outer to the inner." (P. 217.)

Dr. Montgomery candidly states that he has taken a different view of the subject to that entertained by Professor Baer, in the accuracy of

whose views and researches we confess we place the highest confidence. We must refer our readers to the First Number of this Review, p. 239, where we have given a short notice of some recent observations by this celebrated physiologist upon the subject now before us, and will merely make two short quotations, which bear directly on the present question: "It was also evident," says Professor Baer, "that this corpus luteum was nothing else than the mucous membrane lining the Graafian vesicle, which, on account of its rapid growth, was puckered into rugæ;" in another place he says, "I observed, upon examining the body (viz. of a female who had drowned herself on the day after the occurrence of sexual intercourse,) a very turgid vesicle, and, on cutting through it, found the internal membrane, which resembles a mucous membrane, separated from the external one, evidently thickened, somewhat corrugated, and yellower than in the unimpregnated condition. The corrugation was, perhaps, produced in making the section; but this could not have taken place without previous detachment, because this inner membrane, before impregnation, is very firmly attached, throughout its whole extent, to the outer covering. Having frequently observed the lining of the Graafian vesicle in animals, thickened, and more or less detached from the external coat, before the vesicle had emptied itself, I had no doubt but that the growth of this mucous membrane precedes the opening of the vesicle, and that its opening, as also the discharge of the ovum, are effected by these means." We have made this last quotation from Professor Baer's paper, to show under what peculiar and unusual advantages (as respects the shortness of the internal after conception,) these interesting researches were made, opportunities which, without wishing to make the slightest approach to an invidious remark, we may say were not enjoyed by the author. We cannot admit the correctness of the assertion that the Graafian vesicle is lined with a serous membrane, nor do we know on what grounds the author has given it this character.

The description of the changes observable in the external form and appearance of the ovary are very excellent; it is true they are not superior to Meckel's, which is remarkably concise and comprehensive, but as this is not within the reach of every English reader, we quote our author on this subject:

"If we examine the ovaries of a pregnant woman, especially if her conception has been recent, we observe that the one which has supplied the germ differs in several remarkable particulars from its fellow of the opposite side: it strikes the eye at once as being larger, rounder, and more vascular; to the touch it feels fuller and softer: we perceive, further, that this increase of size of the one is not so much the result of an increased development of the whole substance or body of the organ, as of the addition to it, at one part, of a tumour, projecting more or less from its natural outline, as we find in the eye, where the circumference of the cornea projects from the outline of the globe, the segment of a smaller circle being superimposed on that of a greater." (P. 220.)

Dr. Montgomery's description of the changes which the corpus luteum itself undergoes, as pregnancy gradually advances, is equally excellent: we can only quote a part of it:

"Its centre exhibits either a cavity or a radiated or branching white line, according to the period at which the examination is made; if within the first three or four months after conception, we shall, I believe, always find the cavity still existing, and of such a size as to be capable of containing a grain of wheat at least, and

very often of much greater dimensions ; this cavity is surrounded by a strong white cyst, (the inner coat of the Graafian vesicle), and, as gestation proceeds, the opposite parts of this cyst approximate, and at length close together, by which the cavity is completely obliterated, and in its place there remains an irregular white line, whose form is best expressed by calling it radiated or stelliform." (P. 226.)

We have not only the authority of Baer for stating that, during the early periods of gestation, the cavity of the corpus luteum is not "surrounded by a strong white cyst, (the inner coat of the Graafian vesicle)," but also that of Meckel, who expressly states that the corpus luteum, on close inspection, appears to consist of minute lobuli. It has appeared to us, since we were aware of Professor Baer's observations, that these lobuli were evidently formed by the corrugation of the lining membrane, above alluded to ; and we have every reason to suppose that the "strong white cyst," as described by Dr. Montgomery, is not visible until a more advanced period ; the drawings which he has given are, with one anomalous exception, all of corpora lutea at a later period, which is proved by the external opening of the cavity having disappeared in every instance, showing that the corpus luteum had already undergone considerable changes, both as to size, structure, and induration.

In speaking of the discordant opinions which at one time prevailed as to the number of corpora lutea not being the same with that of the young produced, Dr. Montgomery has made some sound and very correct remarks :

"The presence of a corpus luteum does not prove that a woman has borne a child, although it would be a decided proof that she had been impregnated and had conceived ; because it is quite obvious that the ovum, after its vivification, may be, from a great variety of causes, blighted and destroyed long before the fœtus has acquired any distinct form. It may have been converted into a mole or hydatids. Thus, however paradoxical it may at first sight appear, it is nevertheless obviously true, that a woman may conceive and yet not become truly with child,—but the converse will not hold good. I believe no one ever found a fœtus in utero without a corpus luteum in the ovary, and that the truth of Haller's corollary, 'Nullus unquam conceptus est absque corpore luteo,' remains undisputed." (P. 231.)

On this subject we must look upon Meckel as one of the highest authorities, he having examined the ovaries of no less than 200 animals of the class mammalia, and he always found that the number of corpora lutea corresponded exactly with that of the young produced ; we may also add the names of Hunter, Blumenbach, and many others, in confirmation. Meckel has also declared his full conviction that a genuine corpus luteum was never found without the pre-occurrence of effectual sexual intercourse. Dr. Montgomery advocates the same opinion : "I wish to declare," says he, "that I never, in any one instance, saw the corpus luteum having the characters here described as belonging to it, except in females who had previously been impregnated, and my firm conviction is that such a corpus luteum was never found in a virgin animal." (P. 233.) He has entered fully into the consideration of this important point, and has collected much interesting literature to confirm the opinions which we have just stated, and which, we believe, are generally adopted by those who have at all examined the subject. We close our observations on the corpus luteum, by quoting a short but remarkably clear summary of the characters of those virgin corpora lutea, as they have been incorrectly termed :—

- "1. There is no prominence or enlargement of the ovary over them.
- "2. The external cicatrix is almost always wanting.
- "3. There are often several of them found in both ovaries, especially in subjects who have died of tubercular disease, such as phthisis, in which case they appear to be merely depositions of tubercle, and are frequently without any discoverable connexion with the Graafian vesicles.
- "4. They present no trace whatever of vessels in their substance, of which they are, in fact, entirely destitute, and of course cannot be injected.
- "5. Their texture is sometimes so infirm that it seems to be merely the remains of a coagulum, and at others appears fibro-cellular, like that of the internal structure of the ovary, but never presents the soft rich lobulated, and regularly glandular appearance which Hunter meant to express when he described them as 'tender and friable, like glandular flesh.'
- "6. In form they are often triangular, or square, or of some figure bounded by straight lines.
- "7. They never present either the central cavity, or the radiated or stelliform white line, which results from its closure." (P. 245.)

Dr. Montgomery's article on the Period of Human Gestation is one of great interest, and demands an attentive consideration. We may truly affirm that, in no subject of such daily occurrence, and the determination of which is of so much importance, has there prevailed such discrepancy of opinion as in determining the duration of human pregnancy. When we call to mind the difficulties by which it is naturally surrounded, from the uncertainty of the date by which the female usually reckons, and the conflicting interests which, in questions of this sort, but too frequently embarrass and obscure the subject with every species of wilful manœuvring, we view the author's important observations with much interest, as tending to advance us a step further in this difficult investigation; and will endeavour, as far as lies in our power, to add such facts in our possession as may tend to confirm those views which have appeared to us nearest to the truth.

The chief points to be considered are two: firstly, the "natural period of gestation in women;" and secondly, the possibility of, and facts connected with, its protraction. We agree with the author that the natural term of pregnancy is 280 days, or forty weeks; and, in order to prevent the confusion which arises from considering this to be nine calendar months, (which is positively incorrect,) we have always been in the habit of reckoning by the lunar months, by which means the period of gestation will be ten months instead of nine.

"Calculations based," says Dr. Montgomery, "exclusively on the cessation of the catamenia must, necessarily, be defective in affording us any thing like precise information as to the exact period of human gestation: first, because conception may occur at any time between the termination of one menstrual appearance and the time of its expected return; . . . secondly, there may be one or more monthly appearances after conception. . . . My own observations lead me to the conclusion that conception occurs, in the great majority of instances, within the first week after the menstrual discharge. . . . In some cases, and these by no means few, conception occurs immediately before the expected return of the menses; so that, of two women who may have menstruated on the same day, and conceived before the next return, one may complete her full term of gestation three, or even three and a half, weeks before the other; and hence a very common mode of calculation among women themselves is to reckon forty-two weeks from the last menstruation, or forty weeks from the middle day of the interval; and I think it is reasonable to believe that it was the adoption of this mode of calculation which induced the

Romans to allow, as the period of gestation, ten lunar months, amounting to 295 days, or forty-two weeks and one day; and the same period is also assigned by Harvey, dating from the last menstruation; when, says he, 'ten revolutions of the moone being expired, they are delivered, and reap the fruit of their wombe.'" (P. 256.)

It is the variations of the interval between the last appearance of the catamenia and the occurrence of conception, which, in our opinion, has been the fruitful source of uncertainty, and which have given rise to those extravagant, and but too frequently interested views, which have tended so much to perplex this difficult subject. The observations of Tessier on the duration of gestation in animals are highly interesting, but we cannot admit the fairness of applying these facts to the human female. The peculiarity of menstruation alone at once puts her under such essentially different circumstances, that it is impossible to reason correctly from the data alluded to. The occurrence of periodical excitement in the uterine system, which constitutes the function of menstruation, exerts a powerful influence on the phenomena of gestation; and it is a well-known fact, that, where premature expulsion has been induced by causes depending on the general condition of the system, that it usually occurs at what, in the unimpregnated state, would have been a menstrual period. On similar grounds, we have been for some years in the habit of explaining the usual termination of pregnancy at the fortieth week to result from the recurrence of a menstrual period at a time, during pregnancy, when the uterus, from its distention and weight of contents, is no longer able to bear that increase of irritability which accompanies these periods, without being excited to throw off the ovum. We offer this attempt at explanation with all deference, being but too aware that it still requires further confirmation. We should scarcely have ventured to proffer this view of the subject, had not the last-quoted observations of the author appeared to be grounded on a somewhat similar mode of reasoning. We can thus (at least to a certain extent,) easily account for the apparent over-term pregnancies which we every now and then hear of; the interval of time between the last appearance of the catamenia and the occurrence of conception being the chief cause of the variation. An *apparent* protraction of gestation may be by this means produced, as we have already shown in our last quotation from the author; but we conceive that gestation may be also *really* prolonged, under certain circumstances, by the same cause. Supposing two women (in whom the catamenia have regularly appeared every four weeks,) menstruate on the 1st of January: A conceives on the 2d, but B not until the 20th; the 7th of October following would, in the unimpregnated state, have been the tenth occurrence of the menstrual period from the 1st of January. A, being within two days of the forty weeks, or ten months, will not pass over this period, but will be confined on the 7th of October; whereas B, who has only gone 260 days, and is therefore still twenty days short of her full time, will, in all probability, pass by this period without labour coming on, and not be confined till about the 4th of November,—viz. the next menstrual period; and, as most women reckon from the last appearance of the catamenia, she will imagine that she has gone a month beyond the time, whereas she has only gone eight days.

"The weight of authority," says Dr. Montgomery, "is altogether on the side

of those who believe in the occasional protraction of gestation." . . . "Many of these have, in confirmation of their opinions, related the cases on which their conviction was grounded, and which of course had fully satisfied their minds; and I cannot believe it possible that all of these writers could have been mistaken in a mere matter of fact or observation, and that none of the cases which they have put on record were really instances of gestation prolonged beyond forty weeks. At the same time I must add, that the cases which appear to me to carry with them the fullest demonstration of their truth, are those in which the ordinary term was not exceeded by more than three or four weeks." (P. 271.)

With this view of the subject we fully agree, and must express great doubts of cases which are said to have extended beyond four weeks over the time, even when attempted to be explained in the manner above mentioned. In looking over a list of cases which we made some years ago, where the duration of pregnancy had been determined from the last catamenial period, we find that, of 111 women, 57 went beyond, and 52 within, the term of 280 days from the last menstruation: in two instances labour came on exactly at 280 days from the above period. Reasoning merely from this means of reckoning, we should be inclined to infer that 280 days was scarcely the full term of pregnancy; whereas, if we compare the duration of pregnancy in those who have reckoned from other and surer data, we shall find a very different result. Thus, in three cases within our personal knowledge, where intercourse took place but once, the first woman went 260 days; the second, 264 days; and the third, 276 days. Again, of four patients who dated conception from their own peculiar feelings, the first went 272, the second 275, the third 277, and the fourth 291 days; but of the last we have some doubts. Of four patients who had no other date to reckon by except that of their marriage, the first went 256, the second 273, the third 285, and the fourth 288 days. Hence we may conclude that, where the data of conception are tolerably correct, the duration of pregnancy is rarely above the term of 280 days; and, if it be, that this will be capable of being explained in the manner we have just proposed.

In speaking of the Signs of Delivery, we must confine ourselves to a very few brief observations. The changes in the breasts are those to which the author has called our attention first.

"The presence of broken streaks, running in nearly concentric curved lines, of a shining white or sometimes pearly colour, most numerous on the lower part of the abdomen, and sometimes observed on the nates and upper part of the thighs, like the remains of numerous small cicatrices, the surface of which seems reticulated, or as if the texture of the skin had been frayed, is a sign of acknowledged value." . . . "It sometimes happens also, especially in young women of a full habit, that, when the breasts have been greatly and rapidly enlarged during pregnancy and after delivery, the skin covering them is in like manner injured, and silvery lines are formed, which never afterwards disappear." . . . "It is very important to know that these streaks may form on the skin of the breast *during pregnancy*, as well as after delivery; for otherwise we might be led into serious error, and conclude, in a case of first pregnancy, where they happened to be developed during gestation, that the woman has been delivered before. But I have now seen a sufficient number of instances to convince me that they unquestionably form, in some cases of first pregnancy, so early as the sixth month." (P. 296.)

Although the presence of these silvery streaks in the skin of the breast will afford a pretty clear proof that pregnancy has existed, still their absence is very far from proving the converse. We are convinced that not

only pregnancy, but lactation, may take place without their being visible: on the other hand, as is the case with the white lines upon the abdominal parietes, they are capable of being produced by distention of the part from other causes besides those connected with pregnancy.

"The state of the os uteri, vagina, and external parts next claims our attention. By an examination per vaginam, we detect the enlarged state of the uterus, and its identity with the abdominal tumour; and at the same time we ascertain the condition of the os uteri, which, in a recently delivered woman, is found gaping open, so that two or three fingers might be introduced into it with ease: its margins are flabby and very much relaxed, and not unfrequently feel as if divided by several small fissures." (P. 304.) . . . "When the os uteri of a woman who has borne children is examined, its labia are in general found jagged or notched, and sometimes as if a portion had been torn, and remained separated from the rest. I attach great consideration to this state of the part, because it is not likely to be produced by the expulsion of any accidental formation from the cavity of the uterus, and I have never met with it except after childbirth; nor do I believe that it is ever the natural original condition of the uterine orifice." . . . "But the converse of this will not hold good; the unfissured state of the uterine orifice will not be sufficient proof against the former occurrence of childbirth; for a woman may have been delivered, even of a full-grown child, without the production of this change in the os uteri, or only in a trifling degree." (P. 298.)

The condition of the os uteri for some little time after labour is a subject well worthy of attention. To ascertain its precise state, and the changes which it gradually undergoes during the first fortnight after labour, we were induced, several years ago, to institute a series of examinations, in a number of patients, at the end of the first and second week after labour. We will quote two of these examinations, as they give a correct enumeration of these changes:—"Oct. 9. — delivered seven days ago. Os uteri high up, its edges very soft and gaping, admitting the finger with ease; anterior lip longer than the posterior one. — Oct. 16. Os uteri deep in the centre of the pelvic cavity, round, somewhat harder; os uteri externum admits the point of the finger easily, but the os uteri internum does not."

Dr. Montgomery's observations apply to a much earlier period after labour, as is seen by the following quotation.

"If the examination happens to be made within a few hours after delivery, the patulous state of this orifice is such that its margins cannot be distinctly recognized, so that we feel at a loss to distinguish between it and the cavity of the vagina, of which it seems as if it were a continuation. This latter part also is greatly relaxed and dilated, in consequence of which its internal surface is rendered smooth: its natural rugæ being obliterated by the recent distension of its tissues." (P. 304.)

The author's observations on the size and development of the uterus at different intervals after labour are very correct; but we are surprised that he has paid no attention whatever to the size of the uterus, during the first forty-eight or sixty hours after labour; as we feel quite confident that the height of the fundus above the symphysis pubis will greatly assist in proving how much time has elapsed since delivery. The uterus does not continue to contract in size from the moment of expulsion, but in a very short time *increases* in size, becomes somewhat softer, and continues to increase for at least forty-eight hours: it now becomes harder and smaller, and undergoes that gradual diminution which has been described by authors. To render this subject more intelligible, we will give some

admeasurements at different periods after labour, as they occurred in one among several cases. Immediately after birth, the fundus was felt three fingers' breadth below the umbilicus; in ten minutes afterwards, it was two fingers' breadth; in eight hours, it was one finger's breadth; and in twenty hours, level with the umbilicus. On the second day, it was one finger's breadth above, and the third day four fingers below, the umbilicus.

Our limits will not allow us to enter further into this interesting subject, for they have been already long since overstepped. Dr. Montgomery's remarks are highly instructive, and we recommend them to our readers.

The last article in the volume is on the "Spontaneous Amputation of the Fœtal Limbs in Utero," originally published in the Dublin Journal of Medical Science. We have only room to observe that Dr. M.'s view of the subject is by far the most rational which has yet been offered, and which we adopted as soon as we read his interesting paper. We have ourselves met with a remarkable case of amputation of the arm where the child was at the full term: she is now a girl of about seventeen. We were assured by the parents that the separated limb was scarcely, if at all, smaller than the other.

We here close a lengthened, and we trust impartial review of Dr. Montgomery's work, which we strongly recommend to our readers as by far the completest and best that exists on the subject of which it treats. We have unhesitatingly expressed our dissent wherever we felt reason to do so, and we feel convinced that the excellent author will not take in ill part the critical observations which we have thought fit to make. The remarks which we have ventured to make on the period of gestation have not been made without reflection; and we may also state that they have been furnished from very extensive sources: nevertheless, as before observed, we offer them as opinions which still require further investigation and proof. Besides its great intrinsic value, which recommends it alike to the student and practitioner, the work is interspersed with so much interesting illustration as to make it not less a source of amusement than of instruction. We have already spoken of the plates, which are admirable; and we may add, that the whole book is a good specimen of the superior "*getting-up*" of the present day.

ART. XI.

A Treatise on the Malformations, Injuries, and Diseases of the Rectum and Anus. Illustrated with Plates. By GEORGE BUSHE, M.D., formerly Professor of Anatomy and Physiology, &c.—New York, 1837. 8vo. pp. 299.

THIS treatise is a very respectable compilation, but not much more. It contains few original suggestions, and, mixed with a great deal of excellent but familiar advice, the reader will find some that is disputable. Some of the points which come under this last category we shall advert to in the present brief notice of its contents.

Dr. Bushe commences the practical part of his book with the subject

of congenital imperfections. These he divides into obstructions, either at the anus or within the gut; deficiency, entire or incomplete, of the rectum; and false terminations of the rectum in other parts, and of other parts in the rectum.

Under the first head he mentions, in addition to commoner examples, an instance of *two congenital septa in the rectum*. This had fallen under his own observation. Dr. Bushe once saw a case of this kind in a newborn infant brought into the dissecting room. The upper part of the rectum was loaded with meconium; the partitions were thin and friable, being about three-quarters of an inch apart, while the lowermost was nearly half an inch from the anus.

Under the second head, he properly deprecates attempts to open the imperforate bowel from the loins or belly, when its termination cannot be found by dissection of the perineum, and search after its cul-de-sac in the pelvis.

Under the third head, which presents some perfectly remediable cases, our author underrates the extent of relief which the patient may obtain by proper management. The instances to which we refer are those in which the rectum, otherwise imperforate, terminates in the vagina. In these cases two things are to be done: one, to open a channel from the rectum into the perineum; the other, to close the communication with the vagina. Dr. Bushe, speaking of the first part of this process of restoration, observes, "After these operations, the new canal, being nothing more than a fistula, will always be liable to contract, and must, at best, perform its office very imperfectly." Perhaps many others are not aware how perfectly, on the contrary, the retentive and excretory functions may be performed under such circumstances. We have at present under our care a patient, twenty years of age, in whom the last two inches of the rectum are congenitally deficient; but, by constantly wearing a short metal bougie, this patient goes about with the same comfort, and is capable of the same bodily exertion and active habits as other people. No trouble arises from the want of a sphincter, although the diameter of the artificial channel is full half an inch: the bowels act readily and properly daily, after an injection of tepid water.

Foreign bodies obstructing the canal of the rectum, Dr. Bushe observes, are either feculent or alimentary concretions, or hard substances accidentally swallowed, or that have been introduced into the rectum; the latter are such as have either been passed into the bowel by the patient, to relieve obstinate costiveness, or (being knives, gallipots, portions of wood, and the like,) have been introduced "most commonly by wicked persons, who generally take advantage of the inebriated state of their intended victim." Dr. Bushe gives a good account of the various mechanical resources available in such cases; and the following example is a favorable instance of his illustrations of these diseases.

"The instruments necessary for extracting these bodies are, blunt hooks of different sizes and shapes, a lever, gimlet, cutting forceps, strong long scissors with probe points, a six inch narrow saw, wooden gergeret, polypus and lithotomy forceps of different shapes and sizes, a speculum, strong waxed ligatures, metallic tubes of various length and size, and a probe-pointed bistoury; to all of which, the crooked finger and a small hand are admirable adjuncts.

"When the foreign body is large or spiculated, it may be necessary to divide the

sphincter, in order to seize and extract it safely. This, however, in consequence of its large size, can rarely be necessary, for the anus is very dilatable, as I had an opportunity of testing in the case of a delicate female, thirty-five years of age, who for seven years had been subject to constipation and repeated attacks of colic; the former had increased, attended with sickness of stomach, while the latter became more frequent, and from which she only experienced relief when her bowels were moved—a task not accomplished without the most painful efforts and very great difficulty, much cathartic medicine and powerful enemata being necessary in each succeeding attack. I was called to visit her in one of these paroxysms, and found her sallow, emaciated, and dejected. From the severe bearing-down pains, together with the sense of weight and fullness in the sacral region, which she complained of, I was led to make an examination of the rectum, when I found the mucous membrane slightly protruding from the anus, and very turgid, the sphincter excessively irritable, and a large concretion distending the pouch of the rectum. I now apprized her of the nature of the case, and the absolute necessity of removing the foreign body, to which she willingly consented. Having placed her hips over the edge of the bed, and bent her knees towards her chin, while she lay on her back, I introduced a strong and long lithotomy forceps, with which cautiously laying hold of the concretion, I slowly and steadily extracted it, with no more injury than slight laceration of the mucous membrane; although on measurement it proved to be six inches and three quarters in circumference, and two inches and a half in length. The bowels were then freely evacuated by injections; leeches and fermentations were applied to the anus, the recumbent position was enjoined, and a speedy recovery ensued." (P. 58.)

For the treatment of lacerations of the intestines in females, involving complete division of the sphincter, Dr. Bushe describes a new kind of pin for holding the torn edges in contact, which admits of being fixed by a screw. This instrument appears to us very well adapted for the object intended. Dr. Bushe has used it with success, both in recent and still granulating lacerations, and in those which have been some time cicatrized. In cases of the former class, he expresses a doubt of the necessity of the simpler operations, employed by Mr. Copeland and Mr. Mayo, of dividing the sphincter laterally, for the purpose of taking off the strain from the fissure; after which, in the experience of these surgeons, the rent spontaneously draws together, and unites by granulation; the only caution necessary being to keep the surfaces granulating for the three weeks which the laceration requires to heal. To us this operation appears likely to be more certain than any suture, however cleverly applied, to the edges of the recently torn part.

"The pin which I use is as thick as that used for hare-lip, and consists of three parts. The first, which is made of silver, is from one and a half to two inches long, curved as represented in the plate, terminating at one end in a female screw, and at the other in a transverse shoulder about a quarter of an inch long. The second is a triangular steel pin, exactly resembling that used for hare lip, and screws into the extremity of the first portion. The third is made of silver, and resembles the transverse shoulder of the first portion, with this exception, that a small male screw passes vertically from its centre, so that it may be fixed into the first portion, when the second is removed. This instrument is to be used in the following manner: the first and second portions being united, provided the tumefaction has nearly subsided, and granulations are formed, the patient should be brought to the edge of the bed, her hips elevated, and her knees approximated and carried towards the chin. The parts being now cleansed, the needle ought to be dipped in oil and inserted into the left side of the perineum, a line more than half the breadth of its curve from the edge of the wound, and immediately above the verge of the anus. When it has passed vertically for a distance equal to two-thirds of the depth of its

curve, its point should be projected transversely, so as to cross the bottom of the wound, and then carried outwards through the other side of the perineum. This stage of the operation will be greatly facilitated: firstly, by pressing out the left labium during the transmission of the needle through the left portion of the perineum and the base of the wound; and secondly, by steadying the right side of the perineum, with the extremity of the thumb placed immediately without the point through which we desire the needle may pass. When the puncture has been completed, the steel pin should be unscrewed and the third portion fixed in its stead. If it be thought advisable to insert a smaller pin higher up, it may be done, and then a thread should be twisted over the extremities of one or both, as in the operation for hair-lip. It may be prudent to place a light bolster of lint beneath the twisted ligature." (P. 82.)

On the subjects of Fissures of the Rectum, Spasmodic Stricture of the Anus, and Ulcerations of the Rectum, Dr. Bushe does not add to our stock of information; and he makes some confusion by describing, under the first and second of these heads, the same disease. His account of Hemorrhoidal Tumours is good as far as it goes, but it does not contain a notice of all the varieties which this genus contains. He distinguishes, however, with judgment, hemorrhoidal congestion and hemorrhoidal bleeding from these tumours; and, with truth no doubt, observes that the varicose veins, which are often found in piles, and to which they have been attributed, are not an *essential* part of their structure.

"I have repeatedly injected these tumours with coloured water, both from the arteries and veins, and when cut into while the fluid was projected, small jets were observed to issue from many points. I have frequently dissected them with the greatest care, and found that they were spongy, reddish, and contained both arteries and veins, the latter being most capacious, but always perfectly healthy. Their surface is villous, and generally bleeds when touched roughly, or scratched with the nail, the blood which issues being of a florid red colour. In many instances, I have been able to rub off exceedingly vascular and fragile adventitious membranes from their superficies. Thus, it would seem, that they may acquire an increase of magnitude in this way." (P. 152.)

In treating of Prolapsus of the Rectum, Dr. Bushe falls into the common mistake of considering cases, in which the entire structure of the bowel is everted, as cases of protrusion of the mucous membrane only: his rules of treatment are the familiar ones. Upon Relaxation of the Anus, he is too brief: upon Relaxation of the Rectum, with partial contraction and invagination, he gives the following useful case.

"A few months ago, I attended a lady who laboured under this disease for six weeks before I was consulted. During this time she had colic pains, vomiting, constipation, and hysterical symptoms. She had repeated calls to stool, but very seldom discharged more than a sanguineous or puriform mucus, which, however, was rather abundant. She asserted that there was something within the gut, and attributed all her suffering to it. This led me to make an examination, when I found that the lower part of the pouch of the rectum was large and empty; but, by making her bear down, I perceived at once an invagination of the mucous membrane, which was rather firmer and harder than natural, with an opening in its centre, not much exceeding an inch in diameter. I ordered her a light diet, the horizontal position, a bluepill at night, and a teaspoonful of Epsom salt on the following morning. Provided her medicine did not operate by noon, an injection consisting of gruel and oil was administered. After her bowels were evacuated, I daily introduced into the rectum a gut nine inches long, and then inflated it: this she retained for an hour, when, the air being allowed to escape, it was withdrawn. Finally, alum dissolved in a decoction of galls was injected into the bowel every

afternoon, and retained as long as possible. Under this treatment, she recovered in little more than a month." (P. 216.)

With the *malignant diseases* of the rectum Dr. Bushe appears to have been very imperfectly acquainted: he describes in a separate chapter Polypi of the Rectum, misled by the term to overlook the fact that they uniformly belong to the same family, and are a variety and a part of them. The account given of Stricture and Fistula is respectable, but no more; and the expanding bougie, which he recommends for the treatment of the former, is at once too complicated for general use, and mechanically too powerful to be employed with safety. He does not seem to be sufficiently aware that any forcible dilatation of stricture of the rectum is liable to bring on fatal peritonitis.

The plates which accompany this volume are extremely good, and calculated to convey to any one who has not seen the common varieties of hemorrhoidal disease a correct conception of them.

ART. XII.

An Exposition of the Symptoms, essential Nature, and Treatment of Neuropathy, or Nervousness. By JAMES MANBY GULLY, M.D. &c.—London, 1837. 8vo. pp. 192.

MR. SHANDY'S anxiety to secure for his offspring all the benefits derivable from a well-chosen name, has its parallel in the solicitude which authors manifest to usher their books into the world under the auspices of engaging titles. If such was Dr. Gully's feeling when he composed, or rather, perhaps, translated, the title-page of his work, we suspect that the emotion prevented the calm exercise of the judgment. The etymologist would anticipate that nothing short of the whole pathology of the nerves or nervous system would be included under the new term, if the author had not himself presented the synonyme.

We are informed in the preface that, although much attention has been paid by various writers to hypochondriasis, they have overlooked the fact that this disease is only a more intense degree of nervousness. As they have failed to discern, even in hypochondriasis, the connexion between irritation of the viscera and that of the cerebro-spinal axis, the author thinks it is not wonderful that the morbid sympathy between the two systems should have escaped them in the "milder degree" of the affection. The want of correct views upon this subject is attributed to the fact that "the majority of physiologists, in this country, at least," regard the ganglionic system as "an unmeaning appendix" to the cerebro-spinal. We do not pretend to an acquaintance with the opinions of the actual "majority," but of those who, in the present day, have published their views upon this subject, we are aware of scarcely any who deserve the author's reproach.

The first section of the work treats of the symptoms of Neuropathy, arranged under four heads: 1. Sensations; 2. Movements; 3. Disorders of the internal or organic functions; 4. Mental disorders. Dr. Gully is of opinion that cases of Neuropathy may be distributed into two great classes,—first, those in which "visceral and motor symptoms" predomi-

nate; second, those characterized by prevalence of mental disorder; the former belonging to what he calls the minor degree of the malady, the latter to its more intense form, or hypochondriasis.

We cannot imagine what the author's meaning can be in the following passage, with which the section on the *Essential Nature of Neuropathy* commences:

"The minor degree of neuropathy, the illustrations and the resumé of the symptoms of which have been given, does not appear to have engaged the attention of any writer with whom I am acquainted." (P. 78.)

We have met with little or nothing in the said illustrations that we can imagine to be unfamiliar to one who has read our best systematic works upon Medicine, not to mention the monographs of Cheyne, Whytt, Georget, Louyer-Villermay, Falret, and others, or that vast repertory of curious facts and doctrines, old Burton's *Anatomy of Melancholy*. It is true that the affections in question are not described as constituting a disease called "*Neuropathy*, or *Nervousness*," but they are copiously treated of as disorders to which persons of a particular habit, whether natural or acquired, are liable, and even separately from hypochondriacal and hysterical affections. We think it must be pretty generally understood that nervous affections are derangements of sensation and motion, unconnected with vascular or organic changes, and such as may befall any part of the body where those functions are performed; that, when conjoined with a particular condition of mind, they are represented by the term *Hypochondriasis*; and that occurring in certain groups in the female subject, they constitute *Hysteria*. If Dr. G. thought it requisite to urge a greater degree of attention to the pure neuroses, he might have employed himself very profitably in describing their true characters, in contradistinction to the phlegmasiæ and to nutritive and secretory diseases. But this, we apprehend, was not his object; he wished rather to elucidate the nature of a particular group of nervous derangements, to which he has unfortunately applied a designation far too comprehensive. *Nervousness*, in its usual acceptation, ought to be treated of as a diathesis, not as a disease; but, if it must be considered an actual morbid condition instead of a predisposition, we cannot see the propriety of investing it with a speciality. Viewed in reference to symptoms, its character is *generic*: pathologically, it is an element which may enter into the composition of any malady; for, being essentially a derangement of function in one of the primary tissues, it may own no limits but those of the whole body.

The "*essential nature of Neuropathy*" receives a very lengthened discussion.

"The opinion," says Dr. G., "which appears to me the most consonant with facts, and the best established by reasoning from them, may be stated thus:—That, in the minor degree of neuropathy, or simple nervousness, the ganglionic matter distributed about the epigastrium is the only permanently diseased point; while, in the more intense degree, disorder of the brain is added to that of the ganglionic matter alluded to, and partially assists in the maintenance of the symptoms." (P. 82.)

The proof of this theory is entered upon by laying down no fewer than eight physiological propositions,—postulates we should rather call them, —not that we are inclined to grant them, nor that, if granted, they can

reasonably be urged as claims on our assent to the author's inferences. The first two are these:

"1. The phenomena of life in general are the result of the operation of causes on the irritability of the body.

"2. This irritability is represented by the ganglionic system of nerves as distributed, together with the blood-vessels, to all the tissues of the body." (P. 83.)

Upon the first of these it is needless to dwell, since, if it means any thing, it is resolvable into the truism that all vital actions are the effects of agents upon vitality; for the term irritability is used in the sense of a susceptibility of being so affected by certain agents that certain actions which constitute life are the result, or, in other words, as signifying the fundamental property of life. In the second proposition, we do not exactly understand what is meant by the phrase "represented by," though we think it probable that the author intends only to say that the property is conferred by, or is resident in the ganglionic system. Great authorities are cited in favour of this opinion, though we suspect that the majority of them would be found, upon examination, to go no further than the belief that the function of the ganglionic nerves is exclusively devoted to the processes of organic life; a notion very different from the former. A great number of interesting facts have been collected in favour of the presumption that ganglionic nerves take a very important part in organic actions; but certainly, till they are shown to exist in vegetables, we cannot admit their indispensableness to life; and, even were this evidence forthcoming, it would not prove them to confer vitality; because this property would still be only predicable of the whole organism, whereof the ganglionic nerves form but a part. The three next propositions are as follow:

"3. The grand result of the action of causes on the blood-vessels thus supplied with ganglionic matter is nutrition. 4. All the functions, and even the most sudden changes in them, imply a change in the nutrition of the tissues and organs destined to perform them. 5. There is therefore a change effected in any tissue or organ, the irritability of which, as represented by the ganglionic tissue in it, is acted on by ordinary or extraordinary stimulants." (P. 83.)

Though nutrition must certainly be regarded as the primary action of living bodies, (whether dependent on ganglionic nerves or not,) we do not profess to know the grounds for the dogma in the fourth of these propositions. The function, no doubt, implies the nutrition of the organ destined to perform it; and to a change of the function there may perhaps sometimes be said to be a corresponding change in the nutrition, though not always, since an organ may discharge its office differently at different times, merely from a difference in the materials upon which it has to work, and without any alteration in its own substance. But why the ordinary function should imply a change, or rather a perpetual series of changes, in "the tissue or organ," is to us incomprehensible.

The next proposition is curious.

"6. The last proposition applies to the cerebro-spinal nervous matter, and the result is sensation, succeeded by passion or instinct, thought, and volition.

In other words, "the irritability of the cerebro-spinal nervous matter," "as represented by the ganglionic tissue in it," having been "acted on

by ordinary or extraordinary stimulants," a change is effected in that matter, and "the result is sensation," &c. Is it unreasonable to ask for a little more proof than is implied in the "therefore" which ushers in the proposition to which the sixth is a pendant? The two concluding propositions are these:

"7. These phenomena of brain-matter act as indirect stimulants to the irritability of other parts, and therefore play upon the ganglionic nervous system distributed to the viscera.

"8. Impressions made on the viscera, and more especially those largely supplied with ganglionic nervous matter, are reflected on the brain matter, and modify its functions." (P. 85.)

The illustration of these statements occupies several pages, an accurate digest of which we can hardly promise; for we are not quite sure that we have always thoroughly understood the author, whose forte does not appear to consist in arranging his thoughts in the most logical order, or in clothing them in the most lucid phraseology. So far, however, as we could follow the argument, it runs thus: "Impressions commencing in the external senses and the brain are necessarily reflected upon the viscera, and therefrom derive their character and intensity;" as, for instance, the sight or smell of food is agreeable or otherwise, and is judged of by the brain according to the "responsive echo" from the viscera. The principal function of the brain is to receive and transmit impressions from one part to another without intermission. In this transmission of impressions, "the brain is ever playing upon the viscera and receiving stimulation from them," even during consciousness and intellectual processes, since we know that the latter may be disturbed by visceral sensations. But, if impressions originating in the brain are thus communicated to the viscera, it is easy to believe that impressions on the latter must influence the cerebral actions; a fact exemplified in the stimulating effects of food on the voluntary muscles. The author then proceeds to state that the conductors of impressions between the cerebral and epigastric centres are ganglionic nerves; and that, inasmuch as the brain receives a larger proportion of blood than any other organ, it must, according to the second proposition, enjoy "a proportionate degree of irritability, and therefore of ganglionic matter, in its tissue." Although, then, the great sympathetic is the more concentrated collection of ganglionic matter, the brain approaches nearer to it in this respect than any other organ; and, as these collections of "irritable matter" are continuous, the sympathies between them are inevitable. The mutual communications are "transfers of irritation;" and, as functions imply changes of nutrition, it must follow that the nutritive irritation of the two centres is reciprocally modified.

After this physiological proem, the author proceeds to illustrate the operation of such agents as disturb the harmony of the two nervous systems. Thus, in excessive mental application, the brain becomes a focus of irritation to the viscera, which may react upon it to the point of establishing the "major degree of neuropathy." A similar process is traced in the effect of strong passions, and of violent muscular exertion, as well as a converse operation of ennui, in withholding from the viscera the cerebral stimulation to which they have been habituated. The influence

exerted by excitants of the internal sentient surface, particularly by purgatives, is next illustrated; and then the effect of excessive menstruation and lactation, which are shewn to act by transference of "long-continued irritation" of the womb and the breasts to the central nervous nutritive system, and thence to the brain.

The author considers his theory to be "as well entitled to credit as any theory can be which rests upon presumptive evidence alone." We suspect that his conviction is in a great measure assignable to the equivocal meaning of the term irritation. Were the latter used as synonymous with disturbed function, few would be inclined to deny that the early symptoms of such cases as Dr. G. describes belong to the nerves of the viscera; they are, indeed, usually called nervous sensations and nervous derangements, &c., to shew that they are idiopathic, or not secondary to vascular and molecular changes. The current opinion, again, respecting these sensations would readily concede them to be often, in the first instance, excited by cerebral disorder of some kind, and in their turn to react upon the latter; whether by means of what Dr. G. denominates organic reverberations, or by what is commonly called sympathy, is a matter of no great consequence. But Dr. G. sets out with adopting the strict physiological meaning of irritation, as synonymous with vital action, which, of course, comprehends every kind of function. Now, if the vital actions of the viscera were increased, there must be an augmentation of their nutrition, of their movements, of their secreting and absorbing functions, &c.; but are such effects to be traced in the symptoms which the author has himself detailed, the anorexia, the impaired digestion, the constipation, the sense of sinking, &c.? If the brain of the over-tasked student communicates its increased irritation (physiological) to the stomach, the muscular fibres of the latter should be in a high state of nutrition and contractile power; the gastric juice should be poured out in abundance, and of the best quality; and the nerves should reflect, either no sensations at all (unconsciousness of digestion being the most healthy condition,) or none but agreeable ones; while the fact is the reverse of all this.

Dr. Gully's explanation of the effect of suppressed menstruation, or of the drying up of old ulcers, exhibits alike confusion either in his apprehension or in his employment of the term irritation. Having been told that, in a state of health, the organs exchange healthy irritations, we are prepared to hear that suppression of the uterine function occasions disturbance merely because there is a failure in the supply of the normal irritation: instead of this, however, the author tells us "that the womb becomes a source of irritation to other parts," and that "the reverberation would be on the great sympathetic." We should have thought that, according to his views, there would be no reverberation at all, the want of which was the cause of the remote derangement. In like manner, when explaining the effect of suppressed ulcers, he remarks, that, inasmuch as these "established forms of nutritive irritation" have become necessary to other parts, "*when suppressed, they irritate the centre of all irritability!*"

But do we deny that affections of the viscera communicate with each other by means of ganglionic nerves, or that the latter are the media of

intercourse between the viscera and the cerebro-spinal system? Certainly not; for, though absolute proof may be wanting, we have strong presumptions that ganglionic nerves do maintain the harmony of the organic functions, and that they convey the influence of mental and moral changes to the viscera, and return impressions from these organs to some part of the cerebro-spinal system. It is, therefore, probable that ganglionic nerves are deeply involved in some of the disorders which constitute Dr. G.'s milder neuropathy, and that, when those which constitute the severer form occur subsequently to the visceral derangements, the same nerves may bear a part in the morbid communication. But we deny altogether that affections of the brain must necessarily be preceded by ganglionic disorder; firstly, because it has not been proved that ganglionic matter is essential to vital action; 2dly, because it is a mere conjecture that ganglionic nerves accompany the vessels of the brain in such numbers as to form a large collection of ganglionic matter in that organ; and, 3dly, because many serious diseases of the brain, (diseases which must inevitably implicate ganglionic matter, if this is really essential to vital action,) may occur without producing any "organic reverberations" from the viscera. Had Dr. G. contented himself with indicating the ganglionic system as the probable seat of certain neurotic affections of the viscera, often called nervous, hysterical, and hypochondriacal, we should only have been reminded of an opinion very common among pathologists of the present day; but, by connecting this view with certain hypothetical notions respecting physiological irritation, he has mystified rather than elucidated his subject.

In the remarks upon "Constitutional Nervousness," we find a very clear and faithful representation of the principal features of the nervous diathesis; and this we consider the best executed part of the work. We cannot speak as favorably of the theoretical explanation of that condition. The author deems it "highly probable that congenital or constitutional nervousness consists in an unusual development of the visceral ganglionic system, and consequent unusual susceptibility to impressions from the brain."

In the therapeutical section we hoped to have been compensated for time and attention spent upon fruitless speculations, by some valuable additions to our remedial resources. But here, again, the chief space is occupied by fanciful conjectures about the operation of remedies which practitioners in general are content to use from the experience of centuries in their favour; while, in the directions for their use, we meet with cautions which should be familiar to every student. The hygienic treatment recommended by Dr. G. appears to us upon the whole very judicious, and corresponds with the rules given by our best-approved writers on diet, management of the skin, exercise, &c. But it is to be regretted that even these plain matters should be mystified by the strange interpretations with which the author thinks it worth while to overlay them.

ART. XIII.

The Transactions of the Provincial Medical and Surgical Association.
Vol. V.—London, 1837. 8vo. pp. 527. With Plates.

LIKE its predecessors, the present volume continues to evince the activity and zeal of the members of the Association; we think, however, it is, on the whole, inferior to some of those which have already appeared. The Annual Address, instituted for the purpose of taking a retrospective view of the advancement of medical science during the previous year, was delivered by J. G. Crosse, Esq., of Norwich. In a previous number, we have alluded to this elaborate and valuable paper, containing, as it does, and especially in that part of it which is devoted to surgical science, a minute detail of all that had been done for the improvement of our profession during the preceding twelve months. It partakes too much of the nature of an analytical review to admit of being again reviewed. We shall also pass over the papers on *Medical Topography* at present, as we have prepared a separate article on all those which have appeared in the Transactions, and which we hope to give in our next Number.

The third division of the Volume consists of Essays and Cases, some of which we shall shortly notice, particularly such as are of practical value. The account which Mr. JEAFFRESON has given of *the successful removal of an Ovarian Tumour*, is interesting. His object was to operate "as soon as the sac was sufficiently distended to press firmly on the parietes of the abdomen, and before adhesion had taken place." A case, presenting the above conditions was operated upon in the following manner: "An incision of between ten and twelve lines was made in the linea alba, midway between the navel and pubes, and, having thus carefully exposed the sac, about twelve pints of clear serum were evacuated by a trocar. During the flow of the serum, a portion of the sac was secured in the gripe of a forceps, to prevent its receding, and the sac was afterwards extracted entire from the cavity of the abdomen, together with another sac, containing two ounces of fluid, and indeed, the whole ovary, having only to cut through a slight reflexion of the peritoneum and ovarian ligament, which, with the exception of a small portion of the fimbriated extremity of the fallopian tube, are the only natural attachments of the ovary to the uterus. But, as this part was the medium of vascular supply to the sac, and the vessels on the surface of the sac were unusually large, it was included in a ligature previous to returning it into the cavity of the abdomen: the ends of the ligature were cut off close to the knot." The result of this operation was perfectly successful.

Mr. Jeaffreson adds, that the objection which has been urged against early tapping in ovarian dropsy, from the fluid being sometimes contained in several cysts, appears by this mode of operating to be completely avoided, as it gives the opportunity of tapping them in succession, if necessary, and, at all events, of removing the whole of the disease. But it must be borne in mind, that the operation must be performed before adhesion has taken place between the sac and the adjacent viscera.

Mr. HUNT endeavours to show, that the *superior oblique and abductor muscles of both eyes*, supplied as they are by separate pairs of nerves, cannot act at the same time; whilst those muscles which derive their

influence from the third pair generally act consentaneously in both eyes, and cannot, under ordinary circumstances, act independently of each other. The final cause of such nervous distribution, it will be seen, on reflecting upon the actions of the various muscles of the eye, is, that the globe may always be directed towards an object in such a manner as shall ensure the correspondence of the axis of each eye, and thus the perception of a single image by the brain.

Dr. DICK has concluded his remarks on the *Unity of Organic Structure*, which, as containing an outline of various observations and speculations on the correspondence of organs and systems in different gradations of animals during their various degree of development, are well worthy of perusal; but which we cannot further notice in this place.

Two cases of *Encysted Dropsy of the Thyroid Gland* are related by Dr. SELWYN. One of these was cured by a seton, without any untoward accident; the other was treated with similar success by the destruction of a portion of the cyst by *potassa fusa*.

Mr. POYSER has recorded some *Cases and Dissections chiefly in reference to the Uncertainty of Diagnosis*. A faithful chronicle of practical errors would constitute a work of far more value than those which record the miracles of medicine with which we not unfrequently meet; and we trust that in this respect Mr. Poyser will not be without his followers. The present cases are illustrative of the obscurity attending some cases of perforation of the stomach, and of the sensation of fluctuation communicated to the finger by fungous tumours, leading occasionally to an operation for the removal of fluid which it may generally be expedient to postpone.

We can scarcely agree with Mr. HAMERTON in his inference respecting a case of *Tetanus, successfully treated by Carbonate of Iron*. During the course of the attack, the patient consumed a pound and a half of carbonate of iron, and he recovered; but, together with the iron, a variety of remedial means was employed, so that, whether his recovery was *post* or *propter unguentum lyttæ*, bleeding, turpentine *per os et anum*, liquo-*rice*, blisters, &c., individually or collectively, or iron, it would be difficult to determine. As an instance, however, of the safety of taking a pound and a half of carbonate of iron in a fortnight, (a practice which, we trust, is falling somewhat into disuse,) it is not without its value.

Dr. J. SHAPTER has given an account of a *curious case of incapacity to articulate, and of loss of memory of languages*. The individual was highly educated and a "perfect master of several languages." His illness followed great mental anxiety, fatigue, and deficient nourishment; and was characterized by great irritability and cerebral excitement, which would ill bear depleting remedies. At first there was a "total loss of memory for languages." In the later progress of the case, "he could recollect *portions* of a few words, and, after repeated trials, could write some of the short ones correctly, without the assistance of a dictionary." The following is a copy of a note, written after much labour. "Grandfather is in *aposema* in head—in a cure disease in forty-one year—he after dieth blood in blood. I in I an *apossema* in head in a case disease—not in blood—young my brother nine in a case disease of encephalon died—fifteen no can speak—(cephalic snuff) (I can not speak, non read, non write." At the time when Dr. Shapter lost sight of his patient,

(seventeen months after the commencement of his illness,) he was somewhat improved; but "his powers of reading are soon exhausted, and he has for the most part lost the faculty of properly arranging and constructing his sentences, and is now almost totally incapable of articulating with correctness the few words he has with difficulty reacquired." Dr. Shapter hazards the opinion, that the proximate cause of the malady may have been the bursting of a blood-vessel at the base of the brain, or the superior portion of the spinal column; and that some coagulum had formed near that centre whence arise the glosso-pharyngeal and lingual nerves.

Mr. **SALTER's case of Malignant Tumour within the Abdomen** is very interesting, although it is to be lamented that circumstances prevented an examination after death. To have traced, however, during life, and to have recorded the progress of such a disease, is valuable, independent of the knowledge which might have been obtained after death. We entirely concur with Mr. Salter in his opinion as to the malignity of the disease, and as to the mode in which the intestine became implicated therein.

Dr. **NORRIS** has given an account of a *Case of Death from Diaphragmatic Hernia*. It is also another instance of transposition of viscera. In this instance, some portions of the abdominal viscera, long resident within the left cavity of the thorax, had become strangulated, the communication between the cavities being an aperture in the left portion of the diaphragm, near the vertebræ, more than an inch in diameter. The symptoms (those of obstruction) were such as could only lead to a suspicion of the nature of the disease during life.

Dr. **WALKER's Cases of Rheumatic Metastasis** are interesting illustrations of a fact with which the profession is now so familiar that we need not repeat them in this place.

Under the title "*Effects of Chronic Pleuritis*," Mr. **WINDSOR** has related, first, an instance of empyema communicating with an abscess in the back; next, a case of a child aged seven years, in which the removal of a fluid effusion into the left pleura, sufficient to displace the heart considerably towards the right side, appeared to be facilitated by a combination of blue pill, digitalis, squill, and elaterium, and a demulcent mixture. The last case is one of a fatal termination of paracentesis thoracis.

Part the Fourth consists of *Reports of the Birmingham Eye Infirmary*, by R. **MIDDLEMORE**, Esq., of the *Birmingham Dispensary*, by Dr. T. O. **WARD**, and of the *Worcester Infirmary*. The two former reports are characterized by the same care as those of previous volumes: we can, however, only refer to them in this place.

As an appendix to the Volume are added the observations by Messrs. **RUMSEY** and **CEELY**, "*on the present condition of Medical Relief for the Sick Paupers, with recommendations for an altered and improved system*." It is probable that few of our readers who feel themselves interested in this subject, have not had an opportunity of reading this valuable pamphlet. On some future occasion we hope to go into the consideration of the whole subject.

ART. XIV.

Zeitschrift für die Ophthalmologie. Herausgegeben von Dr. F. A. v. AMMON. Fünften Bandes; Zweiter und Dritter Heft.—*Heidelberg und Leipzig*, 1836.

A Journal of Ophthalmology. Edited by Dr. AMMON, of Dresden. Fifth Volume; second and third Numbers in one.—8vo. pp. 287; two Plates. *Heidelberg and Leipsic*, 1836.

WE have already expressed our very favorable opinion of this Journal, which continues to be conducted with all its pristine spirit and acumen. The present double Number contains six extended communications, no fewer than forty miscellaneous extracts, and short notices of thirteen new publications. The extended communications are, 1. The Eye, as an object of Medical Police, by Dr. BEGER; 2. A Case of Amaurosis, with the dissection, and Remarks on Amaurosis attended with distinct organic changes, by Dr. BECK; 3. A continuation of Researches on the Anatomy and Pathology of the Eyelids, by Dr. ZEIS; 4. An Ophthalmological Tour to Vienna and Prague, in 1834, by Dr. THUNE, of Copenhagen; 5. On a peculiar Degeneration of the Iris, consequent to Iritis, by Dr. KLEMMER; 6. Formation of an upper Eyelid from the Integuments of the Temple, with Restoration also of the lower Eyelid, by Dr. AMMON.

We shall give a brief account of the more important memoirs.

1. Dr. BEGER introduces his subject by some eloquent remarks on the importance of the eye in regard to human industry and happiness, and it is pleasing to observe the correctness with which he keeps these objects in view through the whole of his elaborate essay. That it is an imperative duty of statesmen, physicians, and indeed men of every rank, to lend their aid in preserving sight, is the point which he labours to establish. He divides his essay into three sections, and each section into several chapters; and it may amuse our readers to run over the heads of discourse of the worthy German.

His *first* section comprehends the precautions to be observed regarding those persons who are to be allowed to practise as oculists. Under this head, he discusses institutions for the education of the oculist, examinations of candidates in this department, the prevention of eye-quackery, popular works on eye-diseases, and the censure* of ophthalmological publications. His *second* section embraces the means of preventing eye-diseases. Under this head he considers the injurious construction of dwelling-houses and places of public resort; the cleaning and paving of streets, so as to lessen the quantity of dust; the lighting of the streets and public places; the injurious influence of artificial drinks, as wine, beer, &c.; the bad effects of tobacco, snuff, and cosmetics; the effects of improper clothing; the influence of trades and employments; the effects of glasses, and the propriety of restraining the sale of lead spectacles; and the means of preventing and guarding against epidemic and contagious diseases of the eye. His *third* section relates to public oph-

* This term will probably sound but harshly to English ears. What would some of our so-called oculists think, were a law passed that any one publishing such a statement as that he could cure cataract by touching it with a hair pencil dipped in a solution of caustic potash, should have his ears nailed to the pillory!

thalmic institutions, including eye-infirmaries and dispensaries, hospitals or asylums, schools of industry and seminaries for the blind. On all these various topics, Dr. Beger displays a great deal of accurate information and a truly philanthropic spirit.

2. Dr. BECK's *Case of Amaurosis* from atrophy of the optic nerves, occasioned by the pressure of ossified and dilated internal carotid arteries, is interesting, and we shall transfer it to our Selections. The remarks by which it is accompanied, referring to a great number of recorded cases of amaurosis, are good, though rather rambling. The idea has often occurred to us that a *codex casuisticus* of this disease,—that is, a collection of all the best cases on record, particularly of those with dissections, arranged in systematic order,—would prove a valuable addition to ophthalmological literature. We wish some laborious German would think of it.

3. Dr. ZEIS, of Dresden, had previously published, in the fourth volume of Dr. Ammon's *Journal*, a learned and laborious paper on the *Structure of the Eyelids, and especially on the Meibomian follicles*. The present paper follows up his former researches, and we shall give a condensed view of the whole in our next Number.

Dr. THUNZ communicates an amusing sketch of the practice of Drs. Jäger and Rosas, the two great rival oculists of Vienna, and of that of Dr. Fischer, of Prague; all three pupils of Beer.

Dr. Fischer is rather an elderly man, who, with only one eye, and that one aided by a glass, operates with great expertness and eminent success. In the Reports of his Clinic, he has described several curious irregularities of the lacrymo-nasal canal. He has in his possession preparations of a complete closure of its inferior aperture, and of an expansion of the lower portion of it into a cul-de-sac, in the side of which is the communication with the nostril. Among his preparations is one of ossification of the retina and choroid, extending as far forwards as the attachment of the iris. The ossification corresponds exactly to the globular figure of the eye, and its inner surface is studded with minute irregular exostoses.

In forming an artificial pupil by excision, in individuals the height of whose nose prevents the use of the common instruments for laying hold of the iris, he employs a very small pair of forceps, an inch long, and somewhat bent, with which he easily lays hold of the iris, and, drawing a portion of it through the wound of the cornea, snips it off. In general he uses Beer's instruments, only somewhat reduced in size. He has performed extraction innumerable times, as well as operations for forming an artificial pupil. It could scarcely be otherwise; since almost all his patients are treated and boarded gratis. He possesses hundreds of lenses which he has extracted, and is thus able to shew his pupils the remarkable differences they present in form, colour, size, consistence, &c.

A chronic conjunctivitis prevailed for several years in Prague, affecting particularly the conjunctiva of the upper eyelid, and ending in pannus, especially among the poor, who but too often neglected the disease in its early stage. Fischer tried various means for removing the granular state of the lids in this disease, without effect. Touching the diseased surface with nitrate of silver seemed rather to favour the progress of the symptom in question than abate it. At the time of Dr.

Thune's visit, he employed a salve composed of from half-a-grain to three grains of white precipitate of mercury and a drachm of lard, which he pencilled pretty freely on the inner surface of the eyelids and over the eyeball, twice a day. Internal remedies and counter-irritation he considered useless in this disease; and indeed he seldom employs blisters in any case.

5. Those at all conversant with the diseases of the eye must frequently have observed the peculiar state of the iris consequent to iritis, which Dr. Jäger, of Vienna, designates by the name of *Staphyloma iridis*, and to which Dr. Klemmer proposes to apply the new appellation of *Iridoncosis*. The anterior surface of the iris, in the diseased condition to which these names are applied, has lost its natural colour, is often blackish, or even presents a hue so deeply black that we might suppose the iris to have been absorbed at the part affected, or that a piece of it had been cut out for the formation of an artificial pupil.

Dr. Jäger's pathology of this state of the iris is very different from that of Klemmer's. Both are agreed that it is one of the many sequelæ of chronic, and generally of some specific, iritis. In consequence of inflammation, Dr. Jäger thinks the iris loses its natural firmness of texture, and becomes preternaturally adherent to the subjacent uvea. Next, he believes the aqueous humour of the posterior chamber presses the uvea forwards through the attenuated iris, and that thus the *staphyloma iridis** is formed. Dr. Jäger has not himself published on the subject; but, in the account of his doctrine furnished us by his pupil, Dr. Froriep,† and referred to by Dr. Klemmer, we have observed no notice of the influence which the contracted and adherent state of the pupil is likely to have in the cases in question, in promoting the pressure forwards of the uvea by the aqueous humour, in consequence of this fluid not being permitted to flow in what is generally regarded its natural course, namely, through the pupil into the anterior chamber.

That, in such cases as Dr. Jäger designates by the name of *Staphylomata iridis*, the iris is not actually absorbed in its whole thickness, is proven from the want of sight, and from the fact that, under the circumstances in question, he has formed an artificial pupil with success.

In ten deadly chapters, occupying forty-nine pages, every word of which we have most conscientiously perused, does Dr. Klemmer open up his peculiar views of *Iridoncosis*, setting altogether at defiance the Terentian maxim of *Ne quid nimis*. We must content ourselves with a mere modicum of his superflux.

Iridoncus, or *iridoncosis*, (from ἵρις and ὄγκος,) he proposes as the appropriate name for this sequela of iritis, which he contends is not a thinning but a thickening of the iris; not a shining through of the uvea, but a deposition of coagulable lymph in the parenchyma of the iris. The proofs he gives of this are, in our opinion, imperfect; and no less so is his refutation of Dr. Jäger's doctrine on the subject. For anything we have yet learned to the contrary, both conditions of the iris may occasionally exist. Which is the more perfect, and by what marks they are to be distinguished, must be left for future enquirers to determine, and

* *Staphyloma uveæ* would be more correct, and would serve to distinguish this disease from a protrusion of the iris through the cornea.

† *De Coræitide Scrofulosa*, p. 9. Jenæ, 1830.

especially for those who shall have opportunities of dissecting eyes affected with the consequences of iritis.

Sometimes the black discoloration in cases of staphyloma iridis or iridocyclosis exists merely in small insulated points; in other instances the whole iris is affected, except towards the pupil, where the iris is more apt to preserve its natural texture. Sometimes the black colour is present only close to the great circumference of the iris, and forms a complete ring; in other cases it presents a triangular form, the basis of the triangle being turned towards the ciliary, and the apex towards the pupillary edge of the iris. The disease may be total or partial; its surface undulatory or uniform; its colour is not always black, but is sometimes grey or bluish white, or blackish blue; and the spot affected often presents a striated appearance, from the vessels or nerves passing through it.

Dr. Klemmer relates only one dissection, and that not of the human eye, but of the eye of an ox. His magnified figures of the disease are good.

6. The *Formation of a new lower Eyelid* has succeeded in the hands of several operators, as well as in those of Dieffenbach; but we have here the first account of an upper eyelid, supplied from the integuments of the temple; an operation very creditable to the talents of Dr. Ammon.

Mrs. S. had the misfortune to have her face sadly disfigured by syphilis. She lost her nose; her upper lip was so much shortened, that she could not cover the teeth of the upper jaw; the left upper eyelid was destroyed, and the lower in a state of complete ectropium. Several extensive cicatrices on the hairy scalp and on the forehead shewed the previous existence of necrosis, with exfoliations of the outer table of the skull. A considerable portion of the upper, outer, and lower edge of the orbit had been lost in this way. The greater part of the left upper eyelid was so completely removed by ulceration, that its remains surrounded merely, without covering, the eyeball. The conjunctiva of the small portion which remained was turned outwards, and its tarsal edge very irregular.

Dr. Ammon began his operation by insulating and separating from the temple the flap of skin (Fig. 1. *b, c, d, e,*) by which the defective upper eye-

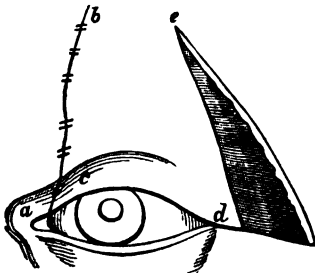


Fig. 11.

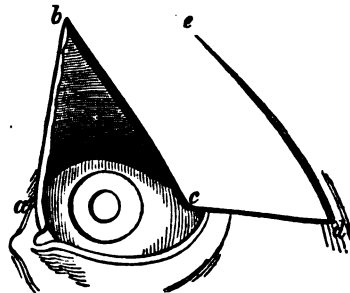


Fig. 1.

lid was to be supplied; he then divided all the adhesions of the old eyelid, and prepared the place (Fig. 1. *a, b, c,*) for the reception of the new one. He formed the flap by a horizontal incision (Fig. 1. *c, d,*) two inches and a half in length, to which he joined the perpendicular one, (Fig. 1. *d, e,*) and then dissected it off. He returned the shrunken remains of the old

eyelid with the bistoury; but unfortunately found it impossible to separate enough of conjunctiva from it to form a lining membrane for the new eyelid.

As soon as the bleeding had ceased, the flap forming the new eyelid having been brought into such a position that it covered the eye, it was secured along its inner edge (Fig. 11. *b, c,*) by Dieffenbach's suture; and thus ended the formation of the upper eyelid.

To remedy the ectropium of the lower eyelid, Dr. Ammon first of all carried an incision through the skin, parallel to its edge, and then dissected it from its unnatural adhesions; he next extirpated a horizontal fold of the exuberant conjunctiva; and, lastly, having made a cut, like a button-hole, through the eyelid, about four lines from its edge, by means of a ligature he laid hold of that part of the conjunctiva which still remained attached to the tarsal portion of the eyelid, drew out this ligature through the wound, and so fixed the lid in its natural position.

At the temporal angle, the upper and lower eyelids were now connected by the twisted suture, which after some hours, however, was removed; Dr. Ammon fearing that thereby the *fissura palpebrarum* might be made too small. The wound on the temple, caused by the transplantation of the new eyelid, was covered with charpie and a thick compress wet with water.

Next day the transplanted skin was somewhat swollen, so much so that the *fissura palpebrarum* was no longer visible, and the eyeball was entirely concealed. By injecting tepid water, Dr. Ammon removed the matter which collected on the eye; but, notwithstanding this precaution, a considerable œdema took place of the conjunctiva, which rendered the injections still more necessary. The union of the inner edge of the transplanted flap did not take place entirely by the first intention, so that, as the stitches were gradually withdrawn, stripes of sticking plaster were applied. The wound on the temple granulated favorably. The cut through the lower eyelid, into which the conjunctiva had been drawn, closed perfectly; so that the eyelid, after the œdema had subsided, maintained its proper position.

The granulation of the wound on the temple proceeded, and along with it the formation of the new outer canthus. Three weeks after this operation, the *fissura palpebrarum* appearing too small, Dr. Ammon slit up the outer canthus as far as the edge of the orbit, and endeavoured to prevent reunion by the introduction of charpie between the lips of the wound. Notwithstanding this, he was obliged, two months afterwards, not to reopen this slit merely, but to extirpate a stripe of skin, so as to give to the *fissura palpebrarum* the proper degree of length; in which he thus completely succeeded.

The transposed flap forming the upper eyelid assumed more and more a natural appearance. The middle of it, however, continued to be œdematous and of a blueish colour, till, on forming a new nose for Mrs. S. out of her forehead, erysipelas came on, and spread to the new eyelid; after which, the œdema became greatly less, and at last vanished entirely.

Seven months after its formation, the new eyelid closed over the eyeball, without irritating it; it could be lifted from it like a natural eyelid, but generally it hung over it in a state of semiptosis. The cicatrix on the temple was very small, so that it was difficult to believe that so considerable a portion of the integuments had been removed from that part.

ART. XV.

The Human Brain; its Configuration, Structure, Development, and Physiology: illustrated by References to the Nervous System in the lower Orders of Animals. By SAMUEL SOLLY, Lecturer on Anatomy and Physiology in St. Thomas's Hospital, &c. *With twelve Plates.*—London, 1836. 8vo. pp. 492.

CIRCUMSTANCES, which it is unnecessary here to mention, have prevented our noticing this book sooner; and we are even now under the necessity of contenting ourselves with a briefer account of it than its merits may justly lay claim to. By the production of this work, Mr. Solly has entitled himself to the gratitude of a numerous class of readers, the students in anatomy, for whose use and advantage his book is specially intended. Fully impressed with the insufficiency of that method of dissecting the brain which consists in removing its substance by successive layers, proceeding from above downwards, and in pointing out the different forms which are thus disclosed, Mr. Solly advises to commence with the spinal cord, and to trace its constituent parts through the various modifications of form and of structure which they undergo, until they are expanded into the hemispheres of the brain and the lobes of the cerebellum. He rejects the absurd or inapplicable names given to many parts of the brain by anatomists, to whom the uses of these parts were unknown, or who attached undue importance to accidental forms; and he substitutes for them terms derived either from the well-understood functions or from the shapes or other physical relations of the parts requiring distinct appellations.

The work consists of eight parts: the first part treats of the comparative anatomy of the Nervous System, commencing with the *Ascaris*, and passing on through the *Articulata*, *Mollusca*, *Fishes*, *Birds*, up to the *Mammalia*. The different forms of the nervous system throughout this series of animals are pointed out; and the gradual approach to that state of concentration of its central parts, by which the higher classes, and most remarkably the human subject, are distinguished, is placed in a prominent and judicious point of view. Various opinions as to the uses of the cineritious and medullary portions of the nervous mass are compared with each other, and the author's view of this subject is stated to be "that the peculiar power of the nervous system resides in the cineritious portion, and that the office of the medullary is simply that of a conductor." The literary history of the Sympathetic Nerve, from Galen to Braschet, is briefly detailed; and the author proposes to apply to this part of the nervous system in man the designation of "*Cyclo-ganglionic* system, as corresponding in its mere anatomical arrangement with the nervous system of the cyclo-gangliated or molluscos division of the animal kingdom."

The second part of the work describes the form of the Vertebral Canal, the Membranes of the Brain, and the Sinuses; it also contains some excellent directions for the removal of the brain and spinal cord from the body; it treats of the configuration of the different parts of the former organ, and briefly of its internal structure. The author adheres to the ordinary division of its substance into medullary, or white, or fibrous,

and cineritious or pulpy; and admits the existence of a fine cellular membrane pervading all its parts, as demonstrated by Dr. Macartney. In his description of the forms of the spinal cord, we were much surprised to find him stating that it gradually tapers "off to a point opposite the second lumbar vertebra, where it terminates in a *single nerve*." This termination, although regarded by old anatomists as a nerve, and called by some of them "the fortieth pair," is now well known to be a ligament, extremely elastic, and conjoined with two branches of vessels by which it is accompanied to its attachment to the os coccygis: it is analogous to the ligamentum denticulatum.

The third part contains the "Dissection of the Human Brain and Spinal Cord," and is extremely well worth the attentive perusal of the student. In the plates belonging to this part of the work are given some instructive views of sections of the cord and of the medulla oblongata, showing the relation which exists between the cineritious and the medullary portions in each of these organs. Mr. Solly regards the olivary bodies and the posterior pyramidal bodies as the ganglia, the former of the function of respiration, the latter of the sense of hearing.

"The view I am inclined to take of the character of the parts comprising the medulla oblongata is simply this: in addition to the columns for motion and sensation, there are here deposited, and imbedded to a certain extent in its substance, four ganglia, two on each side. The most anterior of these are the ovoid bodies, which derive the name of *olivary* from their form. We have already observed their analogues in moths giving origin to the par vagum, in fish, to the branchio-gastric nerves; in like manner, in man they seem to me to be the appropriate ganglia of the pneumo-gastric nerves. The posterior ganglia are found in the fissure at the back part of the cord, which is known by the absurd name of fourth ventricle. They form two projections of a pyramidal figure, and are usually designated the *posterior pyramidal bodies*. In these bodies terminate the auditory, or eighth pair of nerves. These we have also remarked in the fish, under the title of tubercles of the fourth ventricle." (P. 145.) . . . "In support of the opinion that the respiratory muscles are dependent on the corpus olivare for their stimulus to contraction, the results of two or three experiments may be related. A section of the spinal cord made above the origin of the intercostal nerves simply annihilates, as regards the respiratory movements, the power of the intercostal muscles. A section above the phrenic nerve induces paralysis of the diaphragm; while a section exactly at the origin of the par vagum, and therefore through the corpus olivare, occasions a total cessation of every respiratory movement, and instant death. If the section, however, be made above the corpus olivare, then the whole of the respiratory movements take place as usual. Is it not, then, from this point, and this only, that they draw their power of motion? A section of the par vagum produces no such effect: the section must destroy the corpus olivare before total interruption to the respiratory action can take place." (P. 147.)

The following are his remarks on the anterior columns, or motory tracts of the cord.

"Of the fibres which run from the antero-lateral columns to the cerebellum, there are evidently two sets; one superficial, and one deep. The *superficial* may again be divided into two sets: the first cross the surface of the cord immediately below the corpus olivare, and may generally be seen without dissection: they are more distinct in the sheep, bullock, and horse than in man, in whom they form a very thin layer emanating from the corpora pyramidalia; and I have no doubt that they actually decussate with their fellows of the opposite side, forming, in fact, part of the apparatus of decussation, though I have not yet positively ascertained

the fact. The *second* of the superficial set of fibres takes the same direction; only, instead of crossing the cord immediately below the corpus olivare, they run to the inner side of the corpus olivare, and then, ascending to the cerebellum, they form the outer part of the corpus restiforme. The deep set of fibres from the antero-lateral columns of the cerebellum are the most posterior of the whole mass of fibres composing this portion of the spinal cord. They are separated from the posterior columns by the posterior fissure from which the posterior roots of the spinal nerves emerge: this fissure they cross in their passage to the cerebellum, obliterating it entirely. Thus it will be perceived that one portion of the antero-lateral columns, . . . on reaching to within a small distance of the corpus olivare, splits into three sets of fibres; one, and the most anterior of which, passes through the pons Varolii, as will be presently described, and may be designated the *cerebral* fibres of the anterior columns. A second set, which may be entitled the *superficial cerebellar* fibres of the anterior columns, passing over the surface of the medulla oblongata, are usually seen without dissection. . . . The third, or *deep cerebellar* fibres of the anterior columns, proceeding in company with those of the posterior columns, form about a fourth part of the whole diameter of the restiform bodies." (P. 155.) "The fibres just described as connecting the antero-lateral columns of the cord with the cerebellum are peculiarly interesting, when viewed in relation to the functions of the cerebellum. For . . . the experiments of Flourens, Bouillaud, Magendie, and others, and the numerous cases on record in which disease of the cerebellum has been followed by paralysis, all tend to prove that the cerebellum is in some way or other connected with the regulation of muscular action." (P. 162.)

The course of the remaining fibres of the motor tract through the pons Varolii and the corpus striatum, or *anterior cerebral ganglion*, and their termination at the convolutions, or *hemispherical ganglion*, having been described, the author proceeds to notice the commissures. The "*fornix*" is named by him "*the inferior longitudinal commissure*," whose office is to connect the anterior and posterior parts of the same hemisphere, as the transverse commissures do those of the opposite hemispheres. The *superior longitudinal commissure* is that band of fibres which runs, in each hemisphere, above the *great transverse commissure*, or corpus callosum, on the edge of the longitudinal fissure. Its use is supposed to resemble that ascribed to the *superior longitudinal commissure*. The pineal gland and its peduncles form the *pineal commissure*; while the "*processus e cerebello ad testes*," with the interposed "*valve of Vieussens*," have been named the *oblique* or *inter-cerebral commissure*. In describing this structure, Mr. Solly states that it is composed of medullary fibres: whereas, in truth, the middle portion, or "*valve of Vieussens*," contains a large portion of cineritious substance, and, if examined with a magnifying glass, is found to be a most delicate ganglion. In this part of his work the author introduces the description of the cerebellum given by Reil, in the Archiv. für Physiologie; a description which we must characterize as tiresomely and uselessly minute, fitted to confuse the understanding of a student, and incapable of affording useful knowledge to a more mature enquirer. We are surprised that the taste and judgment which lead Mr. Solly to reprehend and reject a system, "*requiring him (the student) to burthen his memory with fanciful and unmeaning names*," . . . "*and puzzling his brain with the absurd titles of hippocampus major and minor, pes hippocampi, tænia hippocampi, cornu Ammonis, &c. &c.*," have allowed him to present to his readers a description which assigns to the parts of the cerebellum the equally absurd titles of *valley*, *pyramid*, *nodule*, *spigot*, *flocks*, and *wings*. We

hope that, in the next edition of his useful work, he will, undeterred by the doubtful authority of a name, substitute for this unprofitable detail of minute and uninteresting localities, a clear and simple account of the cerebellum, written by himself; tracing this organ from its earliest appearance in the animal kingdom, and describing with accuracy its internal, that is—its essential structure.

Lastly, the passage of the column or tract of sensation is traced in part to the cerebellum, and in remainder through the pons Varolii, and the thalamus, or posterior cerebral ganglia, to the hemispherical ganglion of the brain.

In the fourth part is to be found an enumeration of the Cerebral Nerves, with a description of their connexions to the central parts of the nervous system. The fifth part is devoted to the Cerebral Circulation. Neither of these requires any observations from us. The sixth part contains a history of the Development of the Brain, taken from the writings of Tiedemann, Serres, the Wenzels, &c. The seventh is on the Physiology of this organ, and consists of the "Report made to the Royal Academy of Sciences of the Institute," on M. Flourens' well-known memoir on the Properties of the Nervous System; of some further experiments of M. Flourens; and of extracts from publications on the same subject, by Messrs. Bouillaud, Magendie, and Foville.

The eighth and last part is designated "Physiological Inferences from Pathological States," and contains the details of several cases of injury or disease of the brain, derived partly from the observation of the author, but principally from other sources. In this part of his work Mr. Solly endeavours to illustrate the functions of particular parts of the brain by connecting the symptoms observed during life with the organic changes discovered after death. The opinions of various eminent pathologists are noticed and compared; and the conclusions of the author do not materially differ from those generally held on this subject.

From the brief review which we have given of Mr. Solly's book, our readers must have perceived that it contains much valuable matter, presented generally in an agreeable and intelligible form, and leading the student gradually onwards from a notice of the nervous system in the simplest class of animals, to the consideration of its complicated functions and pathological states in the human subject. The views contained in the third part, on the Dissection of the Brain, are remarkable for their simplicity and good sense, and deserve the especial attention of the anatomical student.

Mr. Solly's work does not put forward strong claims to originality of matter, considerable portions of it consisting of avowed quotations from the writings of others, and of statements of the opinions and discoveries of other authors in a condensed or modified form. This circumstance, however, does not in the least diminish the utility of the work: every writer, who successfully devotes his time and talents to the careful arrangement of the leading facts in any department of useful science, is entitled to much praise. Of this meed Mr. Solly is richly deserving. He has proved himself a learned and a skilful anatomist; and it is no less a point of justice to the anatomical student than to Mr. Solly, to recommend his work in the strongest terms.

PART SECOND.

Bibliographical Notices.

ART. I.—*A Course of Legal Study, addressed to Students and the Profession generally.* By DAVID HOFFMAN, Jur. Utr. Doct. Göttingen. Second Edition. In two Volumes.—Baltimore, 1836. 8vo. pp. 876.
—DIVISION VI. MEDICAL JURISPRUDENCE.

THE only portion of this judicious and valuable work which we feel ourselves called upon to notice is the Sixth Division, on the subject of Medical Jurisprudence. The whole work is distinguished by a liberal spirit and highly enlightened views, and may be read by English as well as American students with great benefit. The course of study laid down is extensive, and it has been well observed by an American judge, that, if its precepts are steadily pursued, the next age will exhibit an American bar not excelled by any in Europe.

It seems to have been insisted on by the author, in a former publication, that ethics and law are intimately connected with physics and psychology; a philosophical view too enlarged for the mere lawyer, and which some of his American readers have received with incredulity. In the division of his work which is the subject of our remarks, he observes that Medical Jurisprudence is the connecting link between the science of law and the sciences of matter and of mind; meaning by medical jurisprudence “such a knowledge of physics and of mental philosophy as will enable legislators to enact, courts to expound, and lawyers to comprehend and safely apply laws for the preservation of life and of health; and to discover their violation, (civil or criminal,) as far as such laws are dependent upon physical or metaphysical truths.” (P. 697.)

Mr. Hoffman well observes, that the legal examiner, without being of necessity a Boerhaave or a Stewart, ought to have made some acquaintance with the outlines of physical and mental philosophy, in order to become an efficient or safe adviser. In the appeal by law to medicine, “the questions can neither be propounded, nor the answers be well understood, unless the recipient, as well as the giver, have some community of knowledge, not of law, but of medicine in its largest sense.” The good sense of this is so obvious, that it is a matter of surprise to find, by daily occurrences in the courts, how much it is overlooked. All the acuteness of the barrister,—all his practised readiness for getting up knowledge on short notice,—cannot always secure him from visible embarrassment when examining a medical witness, whose knowledge and whose ignorance equally baffle him; whilst the witness, blundering often from fear of making blunders, finds his best evidence sometimes misconceived, and his errors passing undetected, except by himself and the members of his own profession, who are little inclined to spare him. We think we have seen, on more than one occasion, particularly in will-cases, a trial terminate very differently from what it would have done,

and ought to have done, if one or two plain and pertinent questions had been put to a medical witness. The following observations are, we think, worthy of notice by writers on this branch of knowledge.

"There seems to be some intrinsic difficulty in executing a masterly treatise on medical jurisprudence. It should aim at nothing beyond the elucidation of doubtful legal questions, by the principles and practice of different branches of physics. If it be written by a physician, it is apt to be defective in three respects:—first, the vanity of legal authorship prompts to a too extensive, and necessarily crude, display of legal knowledge; secondly, a want of extensive acquaintance begets not only erroneous statements in law, but much that is absolutely irrelevant; and, lastly, familiarity with his own science induces too much technicality and display of learning on physical topics; so that, erroneous and inapplicable law, uniting with recondite and pedantic physics, render the work unprofitably dull. If, on the other hand, it be the production of a lawyer, it may escape the pedantry, but will scarce avoid most of the corresponding defects.

"All of the treatises, indeed, in all languages, as far as we have looked at them, seem to err from the inadequate knowledge of medicine in the lawyer, or of legal science in the physician; and from the too natural desire of each to deal *learnedly* with topics foreign to his peculiar profession." (P. 699.)

One other observation we cannot but add to these remarks. We have noticed with pain in some recent publications, emanating both from the closet and the class-room, on the subject of medical jurisprudence, an elaborate indelicacy, a pruriency of expression, and a dwelling on topics which can never be quite decently exposed to the public eye. This quality has been so well appreciated by the publishers of such productions, that we have seen, in the morning papers, an advertisement of a forthcoming Lecture, bearing a heading reflecting small honour on any teacher of young men. In fact, such publications are less intended for the profession than for the public; less for instruction than for sale.

Of the works recommended by Mr. Hoffman to the American law-student, on the subject of medical jurisprudence, thirty-seven are British, six American, and thirty-three Continental; and they are selected with equal impartiality and judgment.

ART. II.—*Aretæus of the Causes and Signs of Acute and Chronic Disease.* Translated from the Greek, by T. F. REYNOLDS, M.B. F.L.S. &c.—London, 1837. 8vo. pp. 157.

WE have here a translation of those parts of Aretæus which are used for examination at Cambridge and the College of Physicians. Being thus intended for the assistance of students, it has been made extremely literal, perhaps too much so occasionally; but, when taken in this limited point of view, the fault is certainly on the right side. As it *was* written with this intent, we wish that Dr. Reynolds had given the Greek text also, (copies of Aretæus not being very cheap or common;) and added some notes, as his author is by no means one "whom he that runs may read."

As examples of Aretæus's manner of treating his subjects, and as specimens of the translation, we extract the following passages, relating to two of our best known diseases, one acute and one chronic. Our readers will not fail to observe, in these extracts, defects of expression, of punctuation, and even of grammar.

"On Cholera. Cholera is a retrograde motion of the material of the whole frame into the œsophagus, stomach, and intestines, and is a very severe disorder. What is accumulated in the œsophagus runs off by vomiting, while what is in the stomach and intestines passes below. The first discharges that are thrown off by sickness have a watery look, while those by stool are fluid, stercoraceous, and offensive. This disease is caused by continued crudities, which, when they are washed out, are followed first by slimy, then by bilious evacuations: the first are readily brought away without pain. Afterwards there is tightness in the œsophagus and griping in the belly. If the disorder get worse, the gripings become severer, fainting supervenes, the limbs refuse their support, there is anxiety, and loathing of food; or if any be taken, it is attended with the vomiting of bile of an exceedingly yellow colour, which comes away with a gush and nausea; the stools have the same appearance, while spasms and cramps arise in the calves of the legs and in the arms; the fingers become bent; dizziness and hiccough come on; the nails are livid, with a sense of great cold at the extremities and general shivering. If the disorder be near its close, the patient becomes bathed in sweat; black bile is discharged upwards and by stool, while, from the bladder being spasmodically contracted, the urine does not pass away, and is not even secreted, from the fluids being diverted to the intestines. Speech is lost, pulse very small and frequent, as in syncope; the efforts to vomit are incessant and ineffectual; there is constant desire to go to stool, with tenesmus, but the effort is unavailing, and no liquid flows. Death is very painful and rapid, accompanied with spasm, choking, and retching. Summer is the time for this disease, and then the autumn; the spring brings it less frequently, the winter least of all. The periods of life liable to it are youth and manhood; old age is less so than any other time of life. Children are more liable to it, but does not prove deadly." (P. 37.)

"On Phthisis. . . . The varieties of sputa are infinite, livid, black, or very dark, pale, white, or whitish green, flat or round, hard and tenacious, or thin, and soluble; free from smell or offensive; all these varieties does the pus assume. They who try the sputa, either by fire or water, do not seem to me to understand Phthoë, for the sight is more to be depended on than all the other senses together, not merely in respect to what is brought up, but also with reference to the appearance of the patient, for when any person sees another pale, feeble, constantly coughing and wasting away, he pronounces it a clear case of phthoë." . . . "The voice is hoarse, the neck slightly twisted, elongated, and not easily turned to either side, being as it were somewhat stretched, the fingers are lean, though their joints appear thick, they seem mere bones, so much has the flesh shrunk away, the nails are adunced; the abdomen is wrinkled and flat, for from loss of flesh it neither preserves its filleting nor rotundity, for the same reason the nails become curved, for the fulness of the finger ends, that used to expand and support them, have become, as it were, solid, which causes them to feel painful; the nose is pointed, the cheeks flushed and prominent, the eyes are sunken, but sparkle with a liquid lustre, the face is puffy, pale or livid, the thin parts about the jaws stretched on the teeth, the patients wear a ghastly smile, and their whole appearance is of this character, they are emaciated and fleshless, the muscles of their arms are indistinct, with no vestige of breasts, the nipple merely is visible, you may not merely readily count the ribs, but see where they end, for not even are their articulations with the vertebræ well concealed nor where they overlap the sternum; the interval between them is hollow and curved; the hypochondria are sunk and retracted, the epigastrium and flank adhere as it were to the spine. The joints of the leg, hip, and arm become conspicuous, prominent, and devoid of flesh, and the spines of the vertebræ which were originally in a hollow, now project from the wasting of the muscles on each side, the shoulderblades are seen jutting out like birds' wings. If in such a case the bowels become disordered, it is hopeless." (P. 78.)

Dr. John Clarke in his commentaries on the Diseases of Children, gives Aretæus the credit of having known that, in the first stage of phrenitis, the pupil is contracted. He says "In the early period of the author's practice, he thought that this symptom had not been before observed, as it was not described by modern authors upon the complaint;

but, upon consulting Aretæus, *περι παραλυσεως*, it appears that he had observed the symptom, and he also describes it as belonging to the early stage of the disease, and has made a marked distinction between the state of the pupil of the eye, in the commencement and advanced states of it." (*Commentaries*, p. 121-2.)

Aretæus does not, however, make the distinction that Dr. Clarke supposes; nor is he speaking of inflammation of the brain, but merely of paralysis. The passage in question is thus translated by Dr. Reynolds:

"The pupil of the eye is liable to both these varieties of disease, for it becomes greatly dilated, and the affection is termed *plutucoria*, and sometimes contracted to a very small size, which I term *phthisis*, or *mutriasis*; the bladder also suffers a paralysis of the functions peculiar to it, being either paralyzed, in a state of distention, or becoming incontinent, or rolled up as it were in itself when full of urine, and unable to void it." (P. 75.)

Dr. Clarke quotes the original passage in a sadly distorted state: it is to be found at p. 40 of Wigan's edition.

One of the most curious things in Aretæus is, that he not only knew that the arteries contained blood, but recommended bleeding from those behind the ear, as a cure for headach. He says, they may be distinguished by their pulsation. (*De Morb. Diut. cur.* lib. i. cap. 2.)

ART. III.—DR. ERNST LUDWIG HEIM'S *Vermischte Medicinische Schriften. Im Auftrage des Verfassers nach hinterlassenen Papieren gesammelt, und herausgegeben von Dr. A. PAETSCH, Ausübendem Arzte zu Berlin.*—Leipzig, 1836. 8vo. pp. 412.

The Miscellaneous Medical Works of Dr. ERNST LUDWIG HEIM. Collected and Published, at the Author's desire, from his posthumous papers, by Dr. A. PAETSCH, Medical Practitioner in Berlin.—8vo. pp. 412.

THIS is one of those works which serve as links to connect the present with the bygone times. The writings contained in it extend over a period of fifty years, and have, with the exception of one, been already published in the periodical publications of the day. They are evidently the fruit of a powerful, active, and discriminating mind, eminently gifted with the faculty of accurate observation. They are composed partly of original papers, and partly of reviews of the works of others. Many of them have now, owing to the late rapid progress of practical medicine, lost much of their value, and it is to be regretted that the bulk of the present volume has thus been unnecessarily swelled. To such belong several papers on the diseases of cattle, which the late progress of veterinary medicine has rendered almost worthless. There are others, such as those upon vaccination, which still possess great interest, not, however, so much in a practical, as in a philosophical point of view, by shewing the progress of vaccination through the various stages of its reception till its almost universal adoption, and thus imparting even now a personal interest, as it were, in the controversy, which, at the period of their first publication, was carried on between the promoters and adversaries of the new doctrines.

The reviews are able and well written, and valuable as indicative of

the knowledge and acuteness of the writer, but from the cause already alluded to they have lost much of their pristine worth. A few of the original papers still remain unaffected by recent discovery, and as belonging to such we may mention an excellent article upon the diagnostic characters of scarlatina, roseola, and measles. The last paper of the series is now published for the first time, and is perhaps the best in the collection. It contains the results of Heim's experience in extra-uterine pregnancy during a practice of sixty years. During this period thirty-three cases came under his observation; of these sixteen were situated in the fallopian tubes, three in the ovaries, and fourteen in the abdominal cavity.

When complaints begin to be made, towards the fourth or sixth week of pregnancy, of severe intermitting pains in either hypogastric region, uncontrollable by any remedies except the most powerful narcotics, and accompanied by a very peculiar moaning cry, there is strong reason, says Heim, to suspect pregnancy of the fallopian tube. The cry of the patient is said indeed to be so characteristic, that it suffices to have heard it but once to be enabled almost with certainty to predict pregnancy of the tube upon again hearing it. These pains continue for a longer or shorter space of time, with intervals of relaxation more or less complete, till at last the patient is suddenly seized with the most agonising pains, accompanied sometimes by vomiting and purging, and symptoms which in more than one instance gave rise to suspicions of poisoning. Death speedily ensued, and was proved by dissection to be owing to the bursting of the fallopian tube, produced by pressure caused by the contained ovum, and the consequent escape of a large quantity of blood into the abdominal cavity.

So confident did Heim become of the accuracy with which he could, from the above-mentioned symptoms, distinguish pregnancy of the tubes, that had opportunities occurred to him after he had been enlightened by experience he would not have hesitated to have recommended extirpation of the affected tube, as the only means of saving life. He recommends, however, that the operation should not be performed unless the pains should continue for some time to increase in intensity, as the death of the ovum may preclude the necessity of operating. The operation will always remain extremely hazardous, and it is in vain to deny that the risk of committing error in the diagnosis is very considerable.

Among the cases which Heim records of abdominal pregnancy, is one in which some of the most eminent practitioners in Berlin agreed with him in predicating the presence of a full-timed fœtus in the abdominal cavity. Extraction was resolved upon, and Dieffenbach undertook to perform the operation; but on laying open the abdominal cavity no vestige of a fœtus was to be found. The woman fortunately recovered much to Heim's satisfaction, as he had exerted all his eloquence to induce her to submit to the operation. It were needless, after mentioning this case, again to advert to the extreme difficulty of attaining an accurate diagnosis in cases of pregnancy of the fallopian tube, which had not passed beyond the fourth or sixth week. In another case of abdominal pregnancy, in which Bruckert operated, the diagnosis was more correct, and a fine healthy child was extracted, which received the name of Macduff.

ART. IV.—*Observations on the Topography, Climate, and prevalent Diseases of the Island of Jersey; the Result of Meteorological Observations and general Practice during thirteen Years.* By G. S. HOOPER, M.D.—London, 1837. 8vo. pp. 199.

THIS is a production very creditable to the author, and will be very useful to those among the large body of our countrymen that annually visit Jersey, who, before proceeding to take up their abode in that island, deem the nature of the climate an important consideration. On this subject Dr. Hooper's book contains full information; and, although the author will not entirely escape the charge of partiality in favour of his own place of residence, yet we must admit that his statements are, on the whole, given with candour. Notwithstanding the general commendations of the climate scattered throughout the work, we think the consideration of its details will leave an impression on the mind of his medical readers unfavorable to Jersey as a residence for invalids. Although, like the Land's End, (whose climate it greatly resembles,) it presents great equability of temperature, diurnal, monthly, and annual; and, although this is extremely mild, both in summer and winter, yet, as in the Land's End, the other elements of climate are of a decidedly unfavorable character. Owing to its comparative flatness and nakedness, it lies exposed to every wind; while the frequency of its rains, and its geographical and topographical relations, render it extremely damp. The account given of the diseases by Dr. Hooper corroborates, in a striking manner, this unfavorable view of the climate of Jersey; those diseases which are most certainly traceable to a raw and uncertain climate being particularly prevalent here,—viz. catarrh, bronchitis, and rheumatism.

"For this period of the year" (winter and spring,) "is extremely variable; one day wearing, as if by anticipation, the cheering attractions of a summer sky; whilst the next, cold, dark, and rainy, turns the disappointed mind back to the irksomeness of an inclement season. By reason of these variations, . . . the fashion of low dresses, short sleeves, and bare legs, for children, is admissible, on no sound principles, in this island." (P. 153.) . . . "Among the diseases incidental to infancy and childhood, I have allotted the first rank, in the order of comparative prevalence, to catarrhal affections and intestinal irritation." (P. 147.) . . . "That acute inflammation of the air-passages is a prominent disease among the children in this island, cannot admit of a doubt." (P. 149.) . . . "Concerning bronchitis" [in adult age,] "I have nothing to state beyond the fact of its great prevalence." (P. 172.) . . . "Rheumatism is so general in these parts that it might, with some reason, be viewed in the light of an endemical complaint. . . In the male sex, excepting hernia, no single disease constitutes so frequent a cause of disability for the military service. . . The exemptions owing to this cause may, without exaggeration, be estimated at one-tenth of the whole number of those which are fatal." (P. 173.)

By way of making amends for this unfavorable view of diseases universally admitted to be of climatorial origin, the author endeavours to show that scrofula is not more prevalent in the island than elsewhere, as, it seems, "has been asserted, and very generally credited;" and that consumption is rather less prevalent than elsewhere. Neither of these positions, however, is satisfactorily made out; and, from what we ourselves know of the great prevalence of these diseases in climates almost identical with that of Jersey, we shall require evidence of a very different

kind from that adduced before we can admit the legitimacy of the author's inferences.

A striking defect in this work as a topographical document, is the total absence of statistical details respecting the births and deaths of the population. In so small a community, these documents, one would imagine, might have been easily obtained; and the results, owing to the isolation of the inhabitants, would have been highly interesting and important.

ART. V.—*The American Medical Library and Intelligencer: a concentrated Record of Medical Science and Literature.* Edited by R. DUNGLISON, M.D., Professor of the Institutes of Medicine, &c. in Jefferson College. In *semi-monthly Parts*. No. I. to VIII.—8vo. pp. 128 each. Philadelphia, 1837.

WE have been so long accustomed to the republication, in Brussels, of the French Journals and other medical works from the Parisian press, in a condensed form and at a low price, that we are less surprised at the adoption of a similar practice, in regard to English medical works, by the American publishers. Although such a practice, whereby the interests of the authors of the works thus republished are liable to be greatly compromised, cannot but be regretted, we know not that the individuals who thus republish them, for the benefit of their countrymen and their own, are in any way to be blamed, so long as the present law of national copyright remains unchanged. The temptation to do so is certainly extreme, and the advantages to the readers of the republished works very great. In one of the Numbers of the work now before us, containing a reprint of Sir Benjamin Brodie's Lectures on Local Nervous Affections, we are told that, while the original volume costs, in Philadelphia, one dollar and seventy-five cents, or 175 cents, the same work, as republished, costs only twelve and a half cents. "When this surprising economy is considered, (continues our authority,) with the additional advantage that our *most distant* subscribers can have the best books that are published abroad in a few days after their receipt in the Atlantic cities, the overwhelming value of such a publication as this must be strikingly apparent." And truly so it is to the American reader, although it would probably be more agreeable to English authors to know that, instead of a thousand copies of their works being distributed in their new form, two or three hundred were sold in their original shape and price.

The plan of the work before us is different from any hitherto proposed, yet coming nearer that of the Brussels *Encyclographie* than any other. Instead of republishing the Journals verbatim, like the *Encyclographie*, the *Library* merely devotes one sheet, or an eighth part of the whole, to the purposes of a Journal, the remainder of its pages being entirely appropriated to the reprint of distinct works or memoirs of a superior class. In the Numbers now before us, the works reprinted are, Wardrop on Bloodletting; Babington on the Blood; Stokes's Lectures on the Practice of Medicine; Brodie on Local Nervous Affections; Itard on Deafness, (translated;) Bright on Renal Disease; Hamilton's Observations in Midwifery; Bricheteau's Medical Clinics; Colles on the Venereal Disease. All these reprints are paged separately, and, as the paper and print are remarkably good, they will truly form, when bound

up separately, a most valuable, and comprehensive library for the American practitioner. The price of the whole work is ten dollars per annum.

Notwithstanding some doubts entertained by us, as foreigners, respecting the justice of the international law which permits so serious an invasion of the rights of authors, we cannot but admit that the present publication is calculated to be of immense benefit to our brethren in America; and we shall certainly act more in accordance with the spirit of our beneficent profession in wishing it every success, as a means of promoting the essential good of mankind, than in regarding it as a commercial speculation injurious to the pecuniary interests of individuals. The manner in which the work is arranged and conducted is in the highest degree creditable to its very learned and industrious editor.

ART. VI.—*The Philosophy of the Eye; being a familiar Exposition of its Mechanism, and of the Phenomena of Vision, with a View to the Evidence of Design.* By JOHN WALKER, Lecturer in the Manchester School of Anatomy, &c.—London, 1837. 8vo. pp. 300; with numerous Woodcuts.

ALTHOUGH this work is in some degree calculated for the general reader, it will be highly useful to the medical student as an interesting and attractive introduction to the anatomy and physiology of the eye. Indeed it contains more information in both these departments than any single book which is likely to fall into the hands of practitioners generally, and we therefore recommend it to their notice. The plan of the treatise is good, the matter choice and well arranged, and every point of the least intricacy or difficulty is illustrated by excellent woodcuts. The constant references to design in the structure and functions of the wonderful organ of which it treats is none of its least recommendations as a work to be put into the hand of the younger members of our profession.

ART. VII.—*The Medical Student; or, Aids to the Study of Medicine: including a Glossary of the Terms of the Science, and of the Mode of Prescribing, Bibliographical Notices of Medical Works, the Regulations of the different Medical Colleges of the Union, &c. &c.* By R. DUNGLISON, M.D. &c.—Philadelphia, 1837. 8vo. pp. 323.

THIS is another of those valuable compilations for which the profession in America is so much indebted to Professor Dunglison. Although chiefly intended for students in the American States, it will be useful to students in all countries, as it contains a vast deal of that kind of miscellaneous and varied information which is so constantly needed, yet so difficultly found by them. Besides the mere technical matters, this volume touches on many subjects of yet higher importance, and, among others, on the moral duties and professional conduct of the medical practitioner, which are laid down clearly and forcibly, and with a just appreciation of the dignity of the office. The following titles of the five chapters of which the work consists will give a general but not very exact notion of its contents, as it comprehends many things very interesting to the student,

yet hardly suggested by its title:—Preliminary Education; Medical Education prior to attendance on Lectures; Medical Education during the period of attendance on Lectures; Medical Education after Graduation; A Medical Bibliography for the Student and young Practitioner.

We recommend "The Medical Student" in the strongest terms to his brethren in all countries, and in an especial manner to his compatriots.

ART. VIII.—*Plates of the Cerebro-Spinal Nerves, with References; for the use of Medical Students.* By PAUL B. GODDARD, M.D., Professor of Anatomy in the University of Pennsylvania, &c.—Philadelphia, 1837. 4to. pp. 60; 12 Plates.

THE present work is well adapted to answer the end for which it was published. The author does not profess originality, but acknowledges that his lithographs are culled from larger and more expensive works; amongst which those of Swan, Arnold, and Bell are most prominent. The copies, with the exception of some intentional modifications, are accurate; the references and numbering of the plates are also distinct, a matter of great moment in regard to the utility of plates of this sort; the facility of reference being not unfrequently sacrificed to the beauty of the engraving. Indeed, in any more expensive style of engraving than the present, it becomes essential to adopt the plan of Arnold and others, of giving the references on a separate page, with the plate in outline. The execution of some of the plates in the work before us is much better than that of others; but, on the whole, the volume is neatly got up, although, of course, far inferior to the quarto volume of Mr. Swan; the beauty and moderate price of which would scarcely make the publication of such a work as Dr. Goddard's a desideratum in England. It will, however, be highly useful to his own countrymen.

ART. IX.—*A Manual of General Anatomy, by F. J. MECKEL, Professor of Anatomy at Halle, &c. Translated from German into French, with additional Notes, by A. J. L. JOURDAN and G. BRESCHET. Translated from the French, with Notes, by A. S. DOANE, A.M. M.D. and others.*—London, 1837. 8vo. pp. 421.

THE original of this work has now been more than ten or a dozen years before the public, and has gained so high a character that it requires but few comments of ours to recommend it to the attention of the profession. We have always objected to a work being translated through two languages, because it almost invariably happens that certain portions of the author's meaning are lost, or not sufficiently explained; and if, in the first translation, either of these errors be committed, they frequently become doubled, and perhaps trebled, when the work is retranslated into another language. The translators themselves, in the present instance, appear to be fully aware of this; and we cannot but regret that, instead of employing their time in translating Jourdan, they had not devoted it to the study of the noble original language. We find many inaccuracies in the text thus produced; and, on looking over the notes, it will be seen that they are almost entirely French, and that the standard of informa-

tion which is professed to be given in them is not brought up nearly to the present day. This is a great defect. The quantity of information which has been accumulating through the last five or six years is much too valuable and too abundant to be overlooked in a translation which professes to supply commentaries upon the original. Our criticism is more called for on the present occasion, because we perceive, from a notice attached to the title-page of the present work, that the same authors are about to produce a translation of Meckel's "Descriptive and Pathological Anatomy," derived, like the present, from the French.—We need allude to scarcely more than one instance out of many which we might cite to prove the necessity of a careful attention to the information contained in the notes in illustration of doubtful or incorrect views in the original. At page 223 it is stated, on the authority of Cuvier's "Anatomie Comparée," vol. ii., that in many worms only a single cord exists, which extends throughout the whole of the body, but without giving off any nerves. Now, upon the truth of this statement, much of a great theory of development depends. Although it is the belief of many anatomists, we ourselves have always doubted the correctness of the alleged fact, on analogical principles; and Mr. Swan* has recently shown that it is incorrect with regard to *Strongylus gigas*. We have the strongest belief that this will also be found to be the case in every other instance.

In hopes that Dr. Doane will take our advice and study German before he publishes any more translations of German works, we are bound to say that, with all its defects, the present little volume will be useful to the English student. Its conciseness, and the great mass of interesting and important matter contained in it, cannot fail to render it a valuable acquisition to all who are ignorant of the languages out of which it is translated.

ART. X.—*Practical Facts in Chemistry; exemplifying the Rudiments, and showing with what Facility the Principles of the Science may be experimentally demonstrated, at a trifling Expense, by means of simple Apparatus and portable Laboratories, more particularly in reference to those by* ROBERT BEST EDE.—London, 1837. 12mo. pp. 193.

It can hardly be expected, nor is it perhaps to be desired, that medical students should enter very deeply into the vast and attractive science of chemistry. A general and experimental knowledge of it, however, they ought to possess; but they are often intimidated from endeavouring to obtain even this limited insight of chemistry, from the great expense of the required apparatus, and the too costly experiments which are described by most writers. In this little work the apparatus described, and the experiments recommended to the student, are cheap and simple; the technical phraseology, too, is reduced to the most familiar and simple form consistent with the dignity of chemistry. For these reasons we can recommend the work to students, as an instructive and at the same time amusing guide.

* *Cyclopædia of Practical and Comparative Anatomy*, Part X. vol. ii. p. 130.

PART THIRD.

Selections from the Foreign Journals.

ANATOMY AND PHYSIOLOGY.

On the Structure of the Retina in Man, and the Mammalia generally.

By Dr. C. M. GOTTSCHKE, of Altona.

ABOUT two years and a half since, Dr. Gottsche made, in Copenhagen, the interesting discovery that a distinct nervous radiation might be seen in the retina of the calf; and, after having shown, by repeated examination in different individuals of the vertebrate classes, that the appearance was constant, it was lastly sought for in the human eye, and discovered.

Authors generally describe that part of the retina which they conceive to be the expansion of the optic nerve as a *medullary expansion*, but the filamentous structure in man is denied by all. Such is the account, at least, given by Meckel, Burdach, Hildebrandt, Weber, &c. Amongst the mammalia, Arnold has found the fibrillæ in the hare and pig alone, but denies their existence in the calf, &c. This description of the distribution of the optic nerve would make it an exception to what is considered an essential characteristic of the terminations of the other nerves of the senses. It is not practicable, in the fresh eyes of mammalia, to show this filamentous structure by simple dissection; therefore, Dr. Gottsche had recourse to the assistance afforded by chemical reagents; and the chief secret consisted in softening and removing the compact layer which lay beneath the nervous fasciculi. Maceration appeared to be a means adapted to effect this, but by it the fibrillæ are only preserved immediately around the circumference of the optic nerve, or at best as far as the middle of the retina. Subsequently, solutions of carbonate and nitrate of potassa were employed; but nothing appeared to answer the purpose so well as a solution of one part of corrosive sublimate in three parts of sulphuric æther. After a sufficient maceration, ten minutes' manipulation with a camel-hair pencil and the above solution are sufficient to produce a most perfect and beautiful preparation of the radiation of the ultimate filaments of the optic nerve.

An eye being procured, as fresh as may be, all the external tunics, including the choroid, are removed; a narrow rim of sclerotic immediately surrounding the optic nerve being alone left. The retina is now loosened from the hyaloid membrane, and spread out with its *inner* surface upon a piece of black paper, or, which is better, upon a piece of glass painted black on one side: it will be found necessary to snip the retina at one part of its circumference, in order that it may lie smooth and flat. If the eye be that of a recently killed animal, it is advantageous to macerate the retina, thus prepared, for a time in water. The period of maceration must be decided by the temperature of the weather, and varies from one day to eight: the requisite amount of softening may be ascertained by means of a camel-hair pencil. As soon as the compact layer above mentioned can be wiped away in small fragments from around the optic nerve, the preparation may then be proceeded with. The retina being now spread out so as to lie perfectly smooth, a few drops of the sublimate solution are allowed to spread themselves over its surface, which is at the same time gently brushed with the pencil: by a repetition of this process, the compact layer yields, and the small flakes are washed away by dropping water or alcohol on the surface. If the preparation be now macerated in spirit for a week, and again cleansed, it is fitted for microscopical examination.

If a fresh eye be treated in the above manner, it is rendered unfit for the desired

object by the hardening of the dense layer already spoken of, and the increased firmness of connexion between it and the nervous fibrils.

Pfaff's Practische und Kritische Mittheilungen, &c. Heft xxxiv, 1836.

Microscopical Observations on the visible Motion of the Globules of Lymph in the Lymphatics of Tadpoles. By Professor E. H. WEBER, of Leipzig.

It is already known, from Panizza's beautiful investigations, that, in amphibia, many lymphatics lie in the cavity of other larger lymphatics, and that the coats of the former are thus on every side washed by the contents of the latter. This observation Professor Weber and his brother found confirmed on examination of the vascular system of the *Python tigris*: most of the blood-vessels, indeed, do not lie in the cavity of a single larger vessel, but they are surrounded by a compact net of lymphatics in such a manner that the coats of the central vessel are still washed by the lymph contained in the others; and the only difference lies in the space surrounding the blood-vessels being divided by threads and thin partitions into several communicating compartments.

On selecting a transparent spot on the surface of the tail of the tadpole, it is easy, with the aid of a powerful microscope, to perceive the motions of the globules of blood in the veins; and attentive observation will point out the movement of the globules of lymph in the concomitant lymphatics. When thus viewed, many blood-vessels appear to be broader than the stream of blood, and the observer distinguishes, on both sides of the vessel, a transparent border, into which no globules penetrate. This border might be taken for the lateral parts of the cavity of the blood-vessel, but more attentive observation shows that it must be separated from this cavity, although no partition is visible. The flattened oval globules of the blood are never seen to enter these lateral compartments, but from time to time a round lymphatic globule passes along them. These globules of lymph move very slowly, and often stand still or even retrograde; whilst the globules of blood move along with considerable rapidity, and Weber infers that they are separated from each other by a partition,—first, because none of the globules of the blood are ever observed in the lateral compartments; and, secondly, on account of the great difference of progressive motion of the two varieties of globules. But the space in which these lymphatic globules move extends around the blood-vessel, and, if the microscope be so adjusted as to make the distinct field of vision fall behind the stream of blood, the lymphatic globules, moving slowly along, may be perceived behind the stream. It sometimes happens that blood-vessels are met with which have no apparent transparent border; but this is not evidence sufficient to prove that it does not exist, as the refraction of the light may be such as to prevent it from being visible. Weber found the lymphatic globules to vary in size from 0.003 to 0.00519 of a Parisian line. We are possessed of no means of fixing positively their rate of motion, but it seemed to Weber to be at least ten or twenty times slower than that of the blood. Several other authors have remarked the transparent border or edge of the blood-vessels, and have attributed it to various causes. Blainville supposed that the appearance was owing to the inner coat of the blood-vessel being lined, as it were, with a coating of serum.

Müller's Archiv. Jahrgang, 1837. Heft ii.

Case of Loss of Power of Volition over some of the Cerebral Nerves.

By Dr. MAGNUS, of Berlin.

A YOUNG married woman, æt. 25, lost her husband before the birth of her first child, and the latter died soon after birth. During her recovery, the lochial discharge was suddenly suppressed in consequence of a violent fit of anger, which was followed by hemiplegia and symptoms of insanity. The case was viewed as apoplexy by her medical attendant, and, under antiphlogistic treatment, she gradually recovered. In the month of October, 1835, she was exposed to cold during the flow of the menses, which were in consequence partially suppressed, and during

the next four weeks she continued to complain, without, however, being able to specify precisely what ailed her. At her next period the menses did not appear, but she had an attack similar to that under which she had suffered in childhood. The power of speech was totally lost, but the hemiplegia was not so complete as formerly. She was treated on the same principles, and in some measure with success: the weakness in the extremities was almost completely removed, but the power of speech did not return.

Dr. Magnus was called to attend her in June, 1836. The patient's face was perfectly smooth, without the slightest wrinkle, and totally devoid of expression. She was unable to retain the saliva, which flowed through the half-open mouth; speech was completely lost, but the patient could produce an inarticulate sound, without, however, having any power of modifying it. She had no command over the voluntary muscles of the face; she could not contract the brows nor elevate the *alæ nasæ*; but the eyelids, although resisting the influence of the will, closed involuntarily on the sudden approach of a body towards the eye, or on the application of a strong light; the iris retained its motions in full integrity. The patient possessed the power of motion of the lower jaw, but its movements were slower and less energetic than in the normal state. The tongue did not obey the will; the patient could neither protrude it from the mouth, nor move it within its cavity. In mastication, she was obliged to push the bolus from side to side with the finger, and then to push it backwards till it came within the action of the involuntary muscles, when all the muscular motions connected with deglutition followed exactly as in the healthy state. The sense of taste remained unimpaired. The muscles of the face, although insensible to volition, were affected by some states of the mind. The patient smiled and laughed, and the muscular motions thus produced were exactly the same as those observed in the normal condition. The sound of her laughter was different from the inarticulate tones she at other times produced, and, although partaking somewhat of the nature of a grunt, it underwent modification, showing that the muscles of the larynx, although beyond the reach of volition, were capable of being affected by internal stimulus.

The case is important, as proving that the closing of the eyelids, on the sudden approach of a foreign body, is involuntary; but, perhaps, the most remarkable feature of the case consists in the power of smiling and laughing, which the patient retained, notwithstanding the complete loss of voluntary power over those muscles which are subservient to the expression of these emotions. This phenomenon admits of two modes of explanation: first, the stimulus which produces in the brain the conception of the laughable may pass directly to the roots of the nerves of motion, without affecting in its passage the organ of the will. But, as this theory, according to Dr. Magnus, would suppose a distinct organ of the will, which, in the present state of our knowledge, cannot be recognized, he adopts the second theory, which supposes that, either by compression or some other cause, the texture of the nerves had undergone a change, by which their conducting powers were so altered that, whilst they refused to convey the stimulus of the will, they nevertheless remained obedient to the involuntary stimulus of the conception of the ridiculous.

Müller's Archiv. für Anatomie, &c. Jahrgang, 1837. Heft ii.

PATHOLOGY, PRACTICAL MEDICINE, AND THERAPEUTICS.

On Pneumonia of the Old. By MM. HOURMANN and DECHAMBERE.

[This is the continuation of the excellent Memoir by the same authors, the preceding parts of which we published in former Numbers. See Vol. I. p. 233, and Vol. II. p. 543.]

Etiology and Symptomatology of Pneumonia. The following facts are founded on 109 cases, carefully examined from day to day: of these, 33 were cured; 67 died, and were examined after death; 9 died, with well-marked symptoms of pneumonia, but no dissection was made.

I. Causes of Pneumonia in the Old.

Predisposing Causes. The most active predisposing cause is habitual bronchorrhœa and permanent congestion, the frequency of which has been previously mentioned. Less direct causes are, the rigidity of the whole mechanical apparatus of respiration, which impedes the passage of air, the expectoration of mucus, and the pulmonary circulation; also organic affections of the heart and great vessels, so common in old age; distention of the abdomen from various causes, and particularly from gas accumulated in the intestines, and pressing up the diaphragm; debility from age or diseases; acute bronchitis, which occasionally supervenes on the chronic and chronic pneumonia. Finally, inflammation of one lung predisposes the other to inflammation, so that double pneumonia is very common.

Occasional Causes. 1. *Cold.* It is constantly remarked at the Salpêtrière, that, as the thermometer descends, the number of patients increases, and five-sixths are of pneumonia. One hundred and fifty-six patients were thus distributed.

In January . .	17 cases	..	6 deaths.
February . .	19 —	..	14 —
March . .	31 —	..	20 —
April . .	20 —	..	9 —
May . .	11 —	..	3 —
June . .	6 —	..	4 —
July . .	3 —	..	2 —
August . .	1 —	..	1 —
September . .	1 —	..	0 —
October . .	5 —	..	4 —
November . .	19 —	..	15 —
December . .	23 —	..	10 —
	156		88

2. *Variations in Temperature.* Sudden changes of temperature are frequent causes. The preceding table shows this, besides proving that pneumonia is more frequent in the cold months; for the maximum of frequency is neither in the coldest month, as January, nor in the hottest, as July; but in March, and the first fortnight of April, when sudden changes of temperature are common.

3. *Winds.* Dry and strong winds favour the development of pneumonia, particularly the north-east.

4. *Lying in one position for a length of time* produces congestion of the most dependent parts of the lungs, and thus is a cause of pneumonia. Hence pneumonia, as was formerly stated, most frequently occupies those parts of the lungs which are the lowest, when the patient lies on the back: pneumonia of the right lower lobe is most frequent, and the patients generally lie inclining towards the right side, whilst pneumonia of the left lower lobe is much more rare than of the left upper lobe. Again, in asthmatics who die in a state of orthopnea, the bases of the lungs are often found to be greatly congested, or even hepatized. This, however, requires the concurrence of other causes, and its effects are much favoured by organic predispositions, particularly plethora: thus, prolonged dorsal decubitus is much less injurious to the thin cachectic old woman than to the fat and sanguineous old woman of the first class, which was described in a former article.*

Mode of Attack. This is twofold: either sudden, and with the common symptoms with which it attacks adults; or slowly, secretly, and without symptoms.

1. In the first form, it sometimes begins with a sudden rigor followed by pain in the side, or more frequently by pain in the side only, or this is followed by horripilations. When there is a rigor, it is followed by heat and slight perspiration, and but very rarely by sweating. At the Salpêtrière, in March and April, pneumonia commences with peculiar severity.

2. In the second form, it neither begins with rigor nor with sharp pain in the

side; frequently only general uneasiness, weakness, increased frequency or irregularity of respiration, slight hacking cough, and heat of skin; or even nothing but general uneasiness and weakness. In some cases, an habitual cough ceased at the time when pneumonia commenced. Finally, sometimes the patients make no complaint: they rise, make their beds, eat as usual; then, feeling a little fatigue, they recline on their beds and expire. On examination, a considerable portion of the lungs has been found in a state of suppuration.

In those cases where there were organic diseases, such as diseases of the heart and brain, which might act as predisposing causes of pneumonia, the commencement of the attack was almost constantly latent; whilst, where there was no such predisposition, the symptoms were acute in rather more than half the cases.

II. *Symptoms of Pneumonia in the Old.*

(1.) *Rational Signs.* *Pain.* In the majority of cases, the pain is undetermined, sometimes in the whole side of the thorax which is affected, sometimes in the whole chest, and particularly its anterior part. This pain is, although diffuse, occasionally increased by the slightest pressure. *Dyspnoea.* The patients often complain of no difficulty of respiration, and it may be in such cases that the movements of the chest are in no degree modified. At others, however, they are very irregular, both in force and frequency, and the countenance is marked by great anxiety. The absence, more or less complete, of dyspnoea, is particularly observed in pneumonia of the lower lobe; but, when the inflammation is in the upper lobe, the dyspnoea is frequently a true asphyxia. There are cases, however, of latent pneumonia of the upper lobe. The breath frequently smells like pus, in the third degree. *Cough* generally exists, but it is sometimes so feeble as to excite no attention. The characteristic *Expectoration* observed in the pneumonia of the adult is very rarely seen in the old. It is frequently entirely absent, and often, when it does exist, it is but for a very short time. Its appearances are very variable. Sanguinolent expectoration is most frequent in those cases the commencement of which is acute. The mixture of blood, external to the body, with the secretions produced in chronic bronchitis, produces a fluid which resembles exactly the sanguinolent expectoration which sometimes accompanies the pneumonia of the old.

(2.) *Physical Signs.—Auscultation.—First degree.* Generally, the respiratory murmur is feeble at the point where the pneumonia is developed; sometimes, however, it is strong, and soon becomes bronchial. When strong, it is always accompanied by sonorous rhonchi. The crepitant rhonchus, as heard in the adult, is very rare. The bubbles which constitute it are almost always larger and more moist; the cells of the pulmonary parenchyma being enlarged in the aged, and the air passing through a mucous fluid. But most frequently the first degree of pneumonia gives rise only to a mucous rhonchus, of various extent. This is sometimes a true *gargouillement*, owing to the quantity of mucus which is secreted, and which is increased by the inflammation and the difficulty of expectoration. But it is chiefly in the lungs of the second and third type that this form of rhonchus is observed. Owing to the size of the bronchial tubes, the “souffle tubaire” is very frequent; audible at the root of the diseased lung, alternating momentarily with the natural respiration.

Second degree. The “souffle tubaire” almost always exists; is frequently accompanied by crackling or gurgling; and the combination of these sounds is like those which are produced by a cavity in the pulmonary parenchyma. The resonance of the voice is not so constantly associated with the bronchial respiration as in the adult, and its character is rather that of *œgophony* than of *bronchophony*.

Third degree. The signs of this degree are commonly confounded with those of the second; but occasionally the resonance of the voice and the bronchial respiration diminish in proportion to the progress of the pneumonia. The mucous rhonchus then often becomes more and more abundant, and its gurgling may be heard in all parts of the chest.

But pneumonia in old people has passed through all its stages without giving

rise to any rhonchus. The various sounds which attend pneumonia in the old, and which extend far beyond the parts in which they are generated, show how the disease may be masked and remain latent in its most advanced stages.

Percussion. Before hepatization, the sound on percussion is more modified than in the adult; but this modification is relative, and we should consider a sound as obscure in the aged which would be clear in the adult. Hence, also, hepatization does not produce an absolute dullness, and particularly when the disease is in the anterior and upper part of the chest. The dullness is always more marked behind. Of course, in practising percussion, what has already been said of the varying sonorousness of the different parts of the thorax in the old must always be borne in mind.

(3.) **General Symptoms.** We have already seen that pneumonia may go on to a fatal termination, without having given rise to any manifest general symptoms. It is rare for pneumonia to run through all its stages without some delirium, continuous or interrupted, tranquil or agitated, and always increasing towards the night. Sometimes the mental faculties appear to be simply weakened. But it is important not to confound this state with adynamia, properly so called; for the former may be associated with complete integrity of muscular action and decided febrile reaction: this delirious state is frequent in other diseases of old people, but not in so early a stage as in pneumonia. There may be obstinate constipation or diarrhoea; the latter disposed to establish itself permanently after the use of purgatives. The tongue offers very various characters. Force and fulness of pulse, heat and moisture of skin, so generally connected with the pneumonia of the adult, are most rarely united with that of the aged. The pulse of the aged cannot be considered of morbid frequency, if it be less than ninety. This frequency is often not manifested until several days subsequent to the invasion of the disease, and in some cases not until its last period. The force of the pulse is a symptom not so often observed as its frequency.

The pulse is frequently irregular, and this happens more often where there is simple engorgement than where there is decided inflammation. The state of the skin, as to warmth and moisture, is subject to great variety. The fever which is observed to accompany the pneumonia of the aged may be classed as inflammatory, adynamic, and ataxic. The inflammatory fever is very rare. The adynamic fever is more common, and it presents two varieties. In one there is nothing special in the commencement of the disease: it may be acute or latent, the latter being more frequent. But, as the pneumonia advances, the prostration becomes extreme. The other variety is doubtless the adynamic fever of Pinel; he, however, having overlooked the condition of the lungs in his account of the disease. One of the most remarkable characteristics of the pneumonia of the aged is *the state of the blood*. It is only in the minority of cases that it presents the inflammatory crust; and this is most evident when the inflammation is acute. The clot is soft, and black or greenish; and sometimes the blood does not coagulate, but remains like molasses. The *progress* of the pneumonia of the old is very rapid.

With regard to the discovery of the existence of pneumonia in the aged, it should be always borne in mind that, whatever may be the complaint under which an elderly person may labour, a daily examination of the chest should be instituted. Symptoms of general discomfort (*malaise*.) should direct the physician's attention to the condition of the lungs. The *termination* of pneumonia in the aged in *complete* recovery is rare. Old women continue to cough, without complaining of any indisposition; and the signs discovered by auscultation show that the healthy condition is not quite restored. There is great disposition to relapse, and, on examination after death, are found spots of chronic induration of the lung, together with red hepatization of recent date. These indurated spots are sometimes very numerous.

The *prognosis* is, of course, highly unfavorable.

The cases observed by our authors, and the circumstances under which they were observed, prevent their offering any very decisive suggestions as to the *treatment* of the pneumonia of the aged. They appear to have followed the usual

routine in similar cases; always bearing in mind the activity and character of the local disease in relation to the age of those who were the subjects of their treatment.

Archives générales de Médecine. Tome xii. Sept. and Oct. 1836.

On St. Vitus's Dance. By DR. STIEBEL.

NEARLY one hundred cases of this disease have come under the notice of Dr. Stiebel; and in not one of these, he says, was wanting the evidence of an irritation of the spinal nerves. Few of the patients, during the course of the disease, have not had pain in some one of the vertebræ, and all, either in consequence of the treatment employed or spontaneously, have recovered. Dr. Stiebel believes that the cause of this disease is an irritation of the motor nerves of the spinal marrow or of the medulla oblongata, depending on inflammation or turgescence. Chorea almost always originates during the development of the spine and of the spinal marrow; generally between the seventh and seventeenth years, but occasionally at later periods of life.

The following appears to be the anatomical explanation of the disease:—The spinal marrow, and the origins of its nerves, lie within a bony cavity. If, during their development, there occurs a want of relation between the bones and the nervous system, so that the cavity does not correspond to the increasing marrow, the nervous origins become subject to an irritation as of a foreign body. This disproportion may be the effect of swelling of the spine, without previous change in the nerves, as well as of turgescence of the membranes of the nerves and the nerves themselves, the spine remaining unaltered; but the first is of most frequent occurrence. The spasms generally cease during sleep, although the irritation continues. The chorea may be limited to one side of the body, or to parts of less extent, according to the situation of the irritation. It is liable also to change its place, to become general after having been but partial, and *vice versâ*. It may also alternate with paralysis, which is as little dangerous as the original disease. The change of locality of the disease is not sudden, as in hysteric spasms, but at different periods of the progress of development, each of which is of a certain duration.

Partial chorea of individual motor nerves of the organs of sense constitutes some of the most remarkable forms of the disease; such, for instance, as a constant twitching of the eyelids, distortion of the eyes, abnormal motions of the tongue, and almost uninterrupted sneezing. A very common form of partial chorea consists in the constant and unavoidable utterance of inarticulate sounds. As all the motor nerves of the organ of voice are not affected, the patient can still speak, but with effort and stammering, the inarticulate sounds being afterwards made more uninterruptedly and with greater violence. This utterance of sounds frequently continues for weeks, only interrupted during sleep; a long-continued aphonia frequently follows, or a shooting pain on one or the other side of the breast, or asthma. Palpitation of the heart accompanies chorea, both partial and general. In examining individuals suffering from either local or general chorea, it will be very rare not to find tenderness and swelling of some vertebral bone; but such an examination must be repeated, as the sensibility is frequently not discoverable until the disease has lasted for some time. In all the cases of chorea which Dr. Stiebel has examined, he has discovered no other cause than that above mentioned, although he does not deny the possibility of the existence of other causes;—e. g. metastasis of rheumatic inflammation, injuries of the spine, &c. There is doubtless an hereditary disposition to chorea, it having been known to affect whole families. It is particularly frequent among the Jews. Dr. S. has not himself had any opportunity of examining the bodies of individuals who have died of chorea; but, in all the cases which he has read, changes in the spinal marrow, its membranes, or in the spine, are mentioned.

The treatment of chorea is simple. Leeches, followed by mercurial inunctions, and then by more active exutories, are indicated when a painful vertebra is found to exist. If no tender point is at first discoverable, leeches and blisters may be

applied along the spine. Calomel is generally given internally as a derivative. If the disease is not thus relieved, repeated cold douche-baths on the spine are almost always of advantage. As a general rule, the disease is cured between the fourteenth and the twenty-first day by this treatment; but, should not this happen, the disease may be left to nature, which almost always put an end to it in the progress of development. At the same time, however, it is necessary to guard against the occurrence of any spinal deviations, and irritant frictions may be applied to the spine. Preparations of iron have sometimes appeared to be of use. The description of the disease which is here given will suffice to account for the credit which such numerous remedies have acquired in the cure of chorea; their use having been coincident with the natural cure. It is not intended to deny that there may be a specific remedy, but only that we at present know not what it is.

Wochenschrift für die gesammte Heilkunde. No. I. 1837.

Report on the Inoculation of Morphine, &c. proposed by Dr. LAFARGUE
By M. MARTIN-SOLON.

THE effects produced by the inoculation of morphine are considered by Dr. Lafargue as worthy of consideration, both in their bearing on practical medicine and on medico-legal questions. If the point of a lancet, dipped in an aqueous solution of morphine, is inserted horizontally, about one line in depth beneath the epidermis, and is allowed to remain there a few seconds, the following effects are observed:—About a minute and a half after the operation, a small pimple, with a diffuse rosy areola, and slightly itching, is observed. In about twenty minutes, the pimple becomes about four lines in diameter, and one line in thickness; it is flattened. Its colour is somewhat more than that of the skin, it is hard, its areola is very red, and about an inch and a half in diameter; its heat has increased, but the sensation of itching remains about the same. During the first hour, the pimple and its areola are at their highest degree of development. From this time, the appearances diminish, and at the end of two or three hours the red colour of the skin has entirely disappeared, the pimple has become very flat; but it does not entirely disappear, until from twelve to twenty-four hours after the operation. If several punctures are made near one another, in the same manner, the appearances of the pimples are as above described, but the areola are confluent; the heat and itching are considerably increased. The appearances, however, disappear in the same time as when a single puncture only has been made. The general effects which Dr. Lafargue experienced from thirteen punctures thus made upon the front of his forearm were, heaviness of the head, frequent yawnings, clamminess of the mouth, and an invincible desire to sleep; the quantity of muriate of morphia employed not having exceeded a quarter of a grain.

The effects just noticed, Dr. L. considers as showing that the inoculation of morphia may supersede the use of blisters and ammoniacal applications, and that it merits employment more particularly where the object of the physician is to produce the local effects of morphine. Its effects as a rubefacient are also very marked. Hence its probable utility in superficial neuralgia and in chronic rheumatism, &c. The local effects produced by the inoculation of belladonna, of strychnine, of sulphate of quinine, were different from those above mentioned. In employing other opiate preparations, such as the laudanum of Sydenham, and solutions of opium in fat, milk, coffee, beer, mucus, acetic acid, and gelatine, the proportion of opium being extremely small, the same results were obtained, and no such effects were produced when any of these substances were inoculated without the opium.

M. Martin-Solon repeated the experiments of Dr. Lafargue. From the inoculation of all the common preparations of opium, he observed the same effects as those above mentioned; except that the papule sometimes acquired a diameter of an inch and a half, and that they then became radiated and diffuse. To ascertain whether any other substances were capable of producing the same phenomena, belladonna, strychnine, the gastric juices, chyme, &c., were employed, and the effects which were observed destroyed the exclusiveness which Dr. L. wishes to attribute to the action of preparations of opium.

The conclusion which may be derived from these experiments, may be of some assistance in determining the absence of opium from a fluid which is suspected to contain it; seeing that in all the cases in which fluids containing opium were inoculated (in one instance, the proportion of opium to the solvent was as 1 to 2000,) the phenomena described above were observed by both Dr. Lafargue and M. Solon. The development of the papula can, however, be only regarded as presumptive evidence of the presence of opium; seeing that other substances are capable of producing effects so nearly identical as not to admit of any definite distinction.

Dr. Lafargue has also inoculated a concentrated solution of emetic tartar and the croton oil. The former has always produced a pustule similar to that of *acne simplex*, containing pus, twenty-four hours after the operation; and the effect of croton oil has constantly been the production of a furuncle thirty-six hours after the introduction of the medicine. Neither of these substances has, however, been sufficiently employed to allow of any inference as to the advantage which this mode of application possesses over that in general use. Its simplicity, nevertheless, renders such an experiment very easy.

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On a peculiar Spasmodic Affection of the Fingers. By Dr. ALBERS, of Berlin.

DR. ALBERS has met with three cases of this singular affection, in all of which the individual was incapable of holding a pen to write a line. Every attempt to write ended in the pen's slipping away across the paper in an oblique direction; then the thumb, index, and middle finger would begin to tremble, or would move convulsively apart, and the pen finally fall from the hand. In all, the complaint lasted several years without the supervention of other symptoms, and the hand could always be used for any operation except writing, whatever strength or tact it might require. One of these three individuals, though totally unable to use a pen, could easily lift a weight of 100lb. with his right hand. Two of them, with the exception of this complaint, enjoy perfect health, and manifest no other symptom of a nervous affection; a third would seem, from the manner in which he drags his feet in walking, to suffer from disease of the spinal marrow, but he moves without exertion or fatigue, and has been in the same state of health for years. The following is an account of two of the cases:—

CASE 1. A bookseller, aged forty-seven, enjoyed the best health till the year 1818, and, indeed, only suffers now from piles and their consequences. It was in the above year that the first symptoms of this complaint manifested themselves. At first it was not of much consequence, and only made it rather more difficult and tedious for him to write. He, therefore, took but little notice of it, particularly as his hand was not weakened in the least, and was quite as useful as before. His medical advisers, to whom he incidentally spoke, attributed the affection to obstinate rheumatism, and recommended liniments accordingly. In a year, however, it had made such rapid progress that it was impossible for him any longer to hold a pen. When he attempted to write, his will had no effect upon the movements of his fingers, and his pen slipped either upwards or downwards, or else his hand began to tremble, whilst the fingers started away from each other, and so let drop the pen. Notwithstanding that it was impossible to write with it, the hand was and is equal to any other exercise, and has never been at all debilitated. Pain has never been felt in it, but in the arm, at first, was a feeling of great fatigue, and in the hand, of cold, as of a current of air. Several physicians held this feeling to be an illusion, but the patient indicates the situation of the superficial volar arch of nerves as its seat, whence, he says, it is continued into the fingers. The remedies which were employed against it, such as arm-baths of hot brandy, frictions with the *acidum formicum*, cold baths, vapour baths, the envelopment of the arm in wax taffety and woollen cloth deeply dyed with indigo, as also animal baths, (which, however, were not long continued,) were totally unavailing. When Dr. A. visited Berlin, for a short time, in 1820, he saw this patient, to whom the ill-success of the treatment to which he had been hitherto subjected was become a

source of great anxiety. Excepting his hand, he was quite well, but unable to write, and, therefore, to carry on his business. Dr. A. undertook the case, and, regarding it as purely nervous, he made a small issue half-way between the acromium and the last cervical vertebra; consequently, where the four last cervical nerves and the first dorsal joint to form the brachial plexus. He next recommended his patient to make use of a penholder fixed in cork, which, from its larger circumference, was easily held. In three months the issue was productive of the best results. The affection diminished daily; the cork was soon unnecessary; with a common pen, he was able to write as easily and well as he had ever done before, and he believes that the disease would never have returned if the issue had not been closed after a lapse of two years. The consequence of this was, that, six months afterwards, the affection returned in all its former force. A seton was now made where the issue had formerly been, and was kept up for five months, but without avail. The actual cautery, which Dr. V., who was written to, recommended to be applied in two lines from the cervical vertebra to the tip of the shoulder, the patient's medical attendant did not think it advisable to have recourse to. The patient now determined to learn to write with his left hand: he soon succeeded, and continued in this practice for five years; feeling, it should be remarked, at intervals, a slight attack in this hand, too, of the disease with which the other was permanently affected. About this time his old physician died, and his new one inspired him with fresh hopes of the possibility of a cure. Electricity, galvanism, the baths, &c. of Toeplitz, friction with ammoniacal ointment all over the arm, the application of the moxa in five places from the wrist to the shoulder-joint, sea-bathing, and auz vonica internally, in gradually increased and at last very large doses, were productive of not the slightest result; and the disease is now, after a lapse of twelve years, just what it was at first. The patient has, at last, dismissed all his physicians, and, contented with attempting to remedy the inconvenience of his situation, he uses a wooden apparatus, with which he succeeds in steadying his right hand so as to be able to write with it.

(CASE II. (communicated by Dr. SIEBOLD, of Gottingen.) This case is of thirty years' standing, and is that of a man of sixty years of age, who has given up all hopes of cure, and who, like the person above mentioned, only seeks to obviate the inconvenience of his situation by mechanical means. To his twenty-seventh year he wrote, with the greatest ease, a perfectly legible hand. His leisure hours he was then accustomed to devote to painting, but this did not at all affect the facility with which he wrote. In 1801, however, when he entered on a situation where he had to write a great deal, he remarked that he could not manage his hand with such ease as before, and that he was obliged to press his thumb more firmly on his pencil and brush. He now gave up painting, for which he found himself incapacitated. Writing, too, began soon to cause him greater difficulty. His thumb moved involuntarily, and pressed without interruption upon the pen, so that his writing became nearly illegible. When he wrote for any length of time, he felt a pain in the first joint of the thumb: in short, the disease rapidly developed itself in the form in which it has maintained to the present. The patient has never been, properly speaking, ill since his childhood, and has never suffered from any eruption. He has always been quite free from gouty and rheumatic pains, and his right hand and arm were originally strong and healthy. He has been subject to violent chronic headaches and to piles, but of late years only. His only great cause of complaint has been the present affection. The four fingers of his right hand are in their normal state; but the thumb, whether he move his hand or not, is continually in motion from right to left. In the first joint there is little action, but the second presses so forcibly towards the palm that, if he hold it with his left hand, and place a pen between his middle and index finger, he cannot write with it, on account of the motion which the pressure of the thumb induces in the latter. Any thing that requires the use of the whole hand he can take hold of, and manage without either difficulty or pain; but he is unequal to any delicate manoeuvre where the co-operation of the thumb is required. No intensity of volition can cause the thumb to stay its motion, which it keeps on uninterruptedly. During

the twenty years which have elapsed since the first rise of the complaint, numerous physicians have been consulted respecting it. Their prescriptions have been, according as they referred it to gout, paralysis, or nervous weakness, spirituous frictions, tonic arm-baths, moxa, electricity, shower-baths on the hand and arm, &c. &c.; but all have been equally unavailing. In 1808, the patient learnt to write with his left hand, but he exerted it for this purpose to such an extent that he paralysed it, so as to render it nearly useless. Dictation was now his only resource: what he himself wrote was with a thick lead-pencil, which he grasped with his whole hand. Six years ago it was announced in the "General Indicator" that a ring had been found useful in a similar case. On reading this, the patient ordered one to be made like it for himself. It is placed between the first and second joints of the index finger, and encloses with the latter a pen, for holding which, therefore, neither thumb nor middle finger is required. With its aid, he is now able to write tolerably well, notwithstanding that the constant movement of the thumb causes a little uncertainty in all the motions of the hand.

Dr. Albers classes the above affection amongst diseases of the nerves; but whether it be attended with, or independent of, structural derangement, he does not affirm. If we regard merely the impotence of the will to regulate the motions of the fingers, the disease is comparable to St. Vitus' dance, and might be called a *chorea partialis*; but then it generally happens, in these cases, that the fingers take a certain direction, and that the pen, in writing, slips either upwards or downwards.

Med. Zeitung v. Ver. f. Heilk. in Preussen. No. 9. 1836.

SURGERY.

On the Relations and Proportions of the Muscles of the Right and Left Sides in Lateral Curvature of the Spine. By Dr. GÜNTHER, of Hamburg.

In all cases of lateral curvature of the upper dorsal vertebræ, there exists a spot more developed, or full, near the spinous processes of the lumbar vertebræ of the opposite side. This has led to a general belief that the muscles of the one side are, in their form, development, and power, very different from the corresponding muscles of the opposite side. A circumstance which has further strengthened this opinion is, that, where the curvature has been very considerable, the ribs of one side are much more nearly approximated, and the interval between the last rib and crest of the ilium much less, than on the opposite. The external configuration of the muscles on the two sides is also very dissimilar.

Authors have not paid sufficient attention to the point in question by dissection of the muscles; and even Jörg has neglected to examine their condition in this malformation, although he has given such an accurate description of the altered relations of the bones. In accordance with the opinion of Jörg, Maisonnabe maintains that the muscles of the convex side become lengthened and discoloured, and undergo a change of structure approaching to cellular tissue. Shaw, who appears to give the result of his own dissections, denies this, and states that the muscles of the concave side are not particularly contracted, nor those of the convex side remarkable for their wasted appearance. Heidenreich believes the full appearance opposite the curvature to be, in the first place, rather the result of increased strength and development of the muscles than of the altered configuration of the skeleton. Delpech surmises, without giving his opinion as the result of his dissections, that all the muscles of the back are thin, pale, and weak; but he does not think that the muscles of one side are commonly more developed than those of the other.

Some years since an opportunity offered itself to Dr. Günther of examining the body of a full-grown adult who was the subject of distortion of the spine; and, although he was not then able to devote much time to the dissection, he remarked that the appearances presented by no means tallied with the accounts generally given. The muscles in this case were equally red on either side, and of about the

same density: and, even the intercostal muscles of the side on which the ribs were actually overlapping one another, were by no means shrunk or wasted, as described by Jörg. A few months before the present report was written, Dr. Günther had another opportunity of examining an adult subject similarly circumstanced; and although, from the necessity of deferring the dissection, he was obliged to place the body in spirit for a short time, which to a certain amount interfered with the colour and consistence of the muscles, he was enabled to make some accurate observations. The following are the general results at which he has arrived:—1. All the muscles which act either directly or indirectly on the spinal column continued well developed: no one in particular was shrunk. 2. The form and figure of the muscles, whilst unseparated from their attachments, were much altered; as, for instance, the *latissimus dorsi*, *rhomboidei*, *trapezii*, &c.; their elevation and consequent extension upwards on one side being accompanied by an opposite condition on the other; but, when removed from the body, these same muscles corresponded both in length and breadth. 3. It thus becomes intelligible that the muscles which occupy the hollows are not really shortened or shrunk, but assume a folded form; whilst those which are connected to the corresponding arches are not uncommonly stretched, and the osseous frame-work is likewise compelled to accommodate itself to the soft parts. 4. The object the muscles have to accomplish is, to preserve the equilibrium, *i. e.* so to act as to retain the occipital protuberance in a line vertical to the middle ridge of the sacrum: thus, the head in these individuals rarely deviates from the perpendicular, the distorting effect of one curvature being always compensated for by another; and, in the end, the shoulders are nearly always of the same height. In accordance with these principles, it will be perceived that all the muscles acting on the spine have, as nearly as may be, an equal share of weight to bear on the right and on the left side; a fact which satisfactorily accounts for the equality of development as modified by circumstances to be presently noticed. 5. A remarkable contrast may, however, be observed if individual corresponding muscles are compared; and this difference is doubtless regulated by the same principle, that of dividing the weight and labour equally.

From the foregoing premises the following deductions may be made; the results depending on the variations of power and weight, and the bulk and altered attachments of the muscles:—1. As soon as muscular power operates under unfavorable circumstances on one side, in consequence of displacement or distortion of the bony frame-work, the muscles so circumstanced gain in mass and power. Such unfavorable conditions are, for instance, when the arm of the lever to be moved is shorter, or the angle of attachment of the muscle has become more acute; or, further, if the muscle itself has, from position, become folded in such a manner as to require very vigorous contraction to act upon its point of insertion. 2. If the connexions of a muscle become so unfavorable that it can no longer act at all on its normal points of attachment, or at best but very imperfectly and inconveniently, (especially where the plaiting or folding is so considerable as to produce these disadvantageous results;) such muscle will then change its points of insertion, either by separating itself from one spot and attaching itself to another and more convenient point, or it will derive a fresh origin by newly developed heads.

In order the more accurately to ascertain the deviations of the spinal column from the perpendicular, a large pin was struck into the spinous process of each vertebra of the body of a moderately muscular man, forty-five years of age, who, long before death, had laboured under a sigmoid curvature of the spine. A straight line being drawn from the superior occipital protuberance to the middle of the sacrum, it was observed that the first four cervical vertebrae corresponded to this line, with the exception of a slight inclination of the atlas and axis to the left. From the fifth cervical to the seventh dorsal vertebra, a curvature extended to the left; the centre of the arch or extreme deviation from the perpendicular (about fourteen Parisian lines) being opposite the fourth dorsal. The vertical line then intersected the space between the seventh and eighth dorsal vertebrae, at which point the curvature to the right commenced. This second arch reached as low as the third lumbar vertebra, and thus comprehended eight vertebrae, the three lowest

dorsal being farthest removed (ten Parisian lines,) from the perpendicular. The fourth and fifth lumbar vertebræ were then intersected by the vertical line. By this distortion, to which may be added a curvature forwards in the lumbar region, this man had lost nearly three inches of his height. The upper ribs of the right side were much arched backwards, whilst the corresponding ribs of the opposite side were approximated and flattened. The inferior angle of the right scapula was an inch and a half below that of the left; but the acromion process was, as is usually the case, of the same height on both sides.

The following are a few of the changes observed in the muscular system; and they illustrate the principles laid down:—1. The *trapezius* of the right side was greatly extended, partly by the arching of the ribs, in part because of the depressed position of the scapula and its abnormal distance from the vertebral column. The muscle of the left side was, on the contrary, thrown into plaits; the consequence of which arrangement was, that the right muscle could produce with facility the same results which required vigorous contraction of the left to effect. A comparison of the two muscles bore out this position; for the left was the redder, and proved to be by far the heavier of the two. Nevertheless, when removed from the body and spread out, the two muscles corresponded precisely in length and breadth. 2. The *latissimus dorsi* was likewise much extended on the right side, covering the inferior angle of the scapula to the extent of two inches, and arching over the prominence of the vaulted ribs; whilst the left was folded and gave no covering to the scapula. The upper margin of the right muscle arose at a right angle from the vertebræ; but the left took its origin at an angle the acuteness of which increased more and more as low down as the last dorsal vertebra: the latter also far exceeded the former in weight, although, when spread out, their superficies was the same. 3. The *recti* muscles of the abdomen further partook of the modification resulting from the altered form of the skeleton: that of the right side was thin, weak, and interwoven with cellular and adipose tissue, and not more than a sixth part of the weight of the left.

The other muscles noticed are adduced as evidence that various means are had recourse to by nature for equalizing power under unfavorable circumstances, independently of the simple increase of structure; these means consist in a complete or partial transfer of the muscular attachments from the original to some new and more advantageous position. 4. In consequence of the altered situation of the scapulæ, the relation of the *rhomboidei* and *levatores scapulæ* muscles varied much on the two sides. The left rhomboideus (we name the two as one,) was acting, like the trapezius, under great disadvantage: it was not, however, shortened in consequence of the approximation of its origin and insertion, but lay folded beneath the scapula: but in this position it could not act upon its line of insertion: how, therefore, was this difficulty remedied? The whole muscle was found to have become nearly entirely detached from the base of the scapula, and had contracted a firm and strong attachment solely to its inferior angle; thus assuming the form of a single-penniform muscle. Now, the action of this muscle with such an attachment must have been necessarily limited to the elevation of the inferior angle of the scapula, an effect which, as not desirable, was compensated for by the arrangement of the *levator scapulæ*. This muscle, in consequence of the abnormally elevated position of the left scapula, would have been inert on this side, had it not been furnished with two extra heads; accordingly, beside its regular points of origin, an additional head arose from the oblique process of the fifth cervical vertebra; and another very strong one from the spinous process of the fourth. These two heads were tense, but the normal heads were relaxed; and thus the combined action of this and the rhomboid muscles was in the end rendered similar to that of the corresponding muscles on the opposite side. In accordance with the analogous condition of the other muscles, the left rhomboid and levator of the scapula were much heavier than those of the right. 5. Lastly, the action of the *omo-hyoid* muscles was necessarily interfered with by the altered position of the scapula. In consequence of the bulging backwards of the ribs on the right side, the corresponding scapula was naturally carried back likewise; whilst the left scapula, as will be

remembered, was approximated to the median line. The cellular connexion between the omo and sterno-hyoid muscles, together with the tendinous intersection of the former, existed as usual; only its scapular attachment was in part wanting. The right omo-hyoid was connected to the acromial half of the clavicle, along the line where it usually lies under cover of this bone; and its scapular attachment had degenerated into a mere process of condensed cellular tissue. A similar conversion had commenced on the opposite side, but was not completed; for the left muscle was attached by an independent head to the collar-bone, whilst the normal origin from the scapula was weak and partly converted into tendon.

It will naturally be asked whether these observations are likely to assist us at all in the treatment of the disease in question. We will only here throw out the following hints:—1. The plan of rubbing spirituous embrocations on the convex, and oily embrocations on the concave side, under the impression that increased vigour will result from the former method, and relaxation from the latter, are both grounded on false principles, inasmuch as no absolute contraction of the muscles exists; and their relative power is not directly dependent upon the form of the osseous framework, but regulated by the laws for equalizing the distribution of weight. 2. The advice to strengthen certain muscles on one side by specified exercises cannot be correct, because the evidence which dissection has afforded, proves that there is an ample compensation for the loss of advantageous attachment, by increase of bulk of the muscles so circumstanced: thus, the evil would by this plan of treatment be augmented instead of diminished. 3. As all muscles which assist in maintaining the perpendicularity of the vertebral column in its normal condition, act by tending to approximate the head and each vertebra to the sacrum, so can aid only be expected as a consequence of increased strength where the natural form of the spine has been previously restored, or where extension of the column is combined with exercise of the muscles. Nevertheless, any means of giving tone to the muscles, if employed with careful attention to the general condition of the patient, cannot but operate beneficially in improving the general health. 4. In cases of long standing, where there is an absolute transfer of the attachments of muscles, of course a return to the normal condition and a radical cure are out of the question.

Pfaff's Mittheilungen, &c. Heft ix.-x. 1836.

On Suture of the Intestine. By M. FLEURY.

M. FLEURY, in a Memoir on the Intestinal Suture, relates three cases in which M. Jobert's method of closing wounds of the intestinal canal was put in practice. This method is founded upon experiments, the results of which may thus be stated.

1. If a ligature be applied on healthy intestine, it acts in the same manner as on an artery, cutting the mucous and muscular coats, whilst the serous coat resists its action. 2. If a ligature be applied on a portion of intestine, when the serous membrane is inflamed, all three coats are divided, even though the knot is tied with the least possible force. 3. If two serous surfaces are placed in contact, and the contact slightly maintained, agglutination takes place at the end of an hour; a result which need not surprise us, when we consider the rapidity with which false membranes and adhesions are formed in inflammation of serous tissues.

The operation then consists in bringing the two serous surfaces in contact, by means of a ligature which is not tied, but gently twisted, and which may be withdrawn at the end of a few days.

In the first two cases related by M. Fleury, the result was successful, *quoad* the immediate object of the operation, although from other causes both terminated fatally. The third case was more fortunate.

A lady, aged fifty-four, had had crural hernia on the left side for many years, which had occasionally been strangulated, but had been always reduced by the *taxis*. It again became strangulated on the 25th November, 1836, and after many *ineffectual* attempts at reduction, the operation was resolved on. The intestine

had now been strangulated fifty hours. The usual incisions were made, and the sac being opened, M. Jobert was astonished to find that it contained nothing but a straw-coloured serum, and terminated in a cul de sac. Further examination convinced him that this was an old obliterated sac, and that below it existed another containing strangulated intestine. Accordingly, a further incision opened the true hernial sac, which contained several loops of intestine, much distended and adherent to each other. By accident, the bistoury penetrated the intestine, and a quantity of gaseous and fecal matter escaped, to the great relief of the patient. The stricture having been divided, the operator determined to close the wound in the intestine by suture. A common needle was introduced into the intestine from without about three or four lines below the edge of the wound, and brought out about half a line from the edge; it was then introduced on the opposite lip of the wound, and carried from within outwards, so as to emerge about three or four lines from the edge. The threads being then brought together, gentle torsion was applied, which brought together the external edges of the wound, and placed the serous surfaces in contact. The intestine was then returned into the abdomen, and the threads being retained without by adhesive plaster, the ordinary dressings were applied. The symptoms were from this time favorable; on the fourth day the bowels acted well; on the sixth day the wound was dressed, and one of the threads withdrawn; on the eighth day the second ligature was removed, and the wound healed rapidly. Three months after the operation, the patient was quite well, the bowels acting regularly.

[A comparison of this case with that of Professor Dieffenbach's related in the April Number of this Review will show the superiority of M. Jobert's method.

In Dieffenbach's case the patient survived several weeks after the operation, and had returned to his usual occupations; yet on examination, suppuration was found to be still going on round the ligatures which had been cut off close, and left within the abdomen. It will therefore be advisable to use torsion in preference to tying a knot, even should the intestine be in a perfectly healthy state.]

Archives G n rales de M decine. Mars, 1837.

¶ On the Nature and Treatment of Itch.

[THE following articles, extracted from different Journals, we have placed together for greater facility of comparison and contrast. The subject is trite, but not the less important on that account.]

I. On the Influence of the Human *Acarus* in the Production of Itch.

By M. ALBIN GRAS.

SEVERAL eminent physicians, and among others M. Rayer, (in the last edition of his Treatise on Cutaneous Diseases,) having doubted if the *acarus* be really the cause of the itch, M. Gras proposes, in the present memoir, to answer the three following questions:

1st. Is the *acarus* always observed in this disease, and never apart from it?

M. G. has never found the insect elsewhere than in cases of itch. On examining the hands only of those who *first* presented themselves for treatment, the insect was observed in nine out of ten cases: the exceptional instances he notices might have presented it in other parts of the body, or the patients might have been under treatment furtively.

2d. Is the *acarus* the agent of the contagion of itch?

To resolve this question, he states that, independently of successful inoculation on his own person, he placed some *acari* between the fingers of a fellow student, who was fairly infected, although all contact with other patients had been avoided; and, of two young women who had the *acari* placed in the arm-pit, one (and one only) took the disease, and communicated it to her father and mother. On the other hand, his own experiments, and those of MM. Mouronval and Lugol, in 1821, have proved the futility of inoculation from the vesicles of the itch. As a further confirmation, he adds that, after two or three applications of sulphur oint-

ment, all the acari discovered were dead, although the eruption, and even the formation of new vesicles, continued. Daily experience attests that the disease ceases to be contagious after two or three days' treatment. The acarus appears to possess a complicated organization: it lays eggs; and the copulation of two allied species, the acarus of the sheep and that of the horse, has been observed; it is, therefore, too perfect to be the produce of spontaneous generation, even if this theory were admissible. Were the acarus not the cause of the contagion, the itch should be found without it, a fact at least very rare; or the acarus should exist without the itch, which has not yet been noticed.

3d Question. In what way does the insect produce the itch; by direct and mechanical irritation, or by means of a peculiar virus?

On examining the vesicles of the hand, some few are observed to be situated at the origin or by the side of the little grooves hollowed by the insect, but by far the greater number exhibit no trace of its presence: on the contrary, fifty or more insects were sometimes discovered on the hands when there were few vesicles, and hardly any pruritus. These animals are with certainty destroyed by a few inunctions, but fresh crops of distinct and acuminated vesicles will often continue to arise for a fortnight or more. For these and other reasons, M. Gras considers that the acarus exerts upon the skin a physiological and vital action, by virtue of a particular virus; using the word virus as synonymous with the phrase, "unknown agent, producing great effects by a trifling visible action." He compares the *modus operandi* to that of certain insects, which, placing their little egg upon the oak or other vegetable, develop, each after its kind, numerous varieties of excrescences.

Journal des Connaissances Médicales. December, 1836.

II. On the Nature and Treatment of Itch. By Dr. PENTZLIN, of Wismar.

The cause of itch still remains involved in some obscurity. The modern French school considers the *Acarus scabiei* as the sole cause of its propagation, and refuses to allow contagious properties to the contents of the vesicles or pustules. Dr. Pentzlin, of Wismar, is disposed to consider this view of the subject as erroneous, and he regards the insect as a mere parasite, which owes its existence to "generatio æquivoca." Experiments have been adduced to prove that the disease can be communicated by means of the insect only; but Dr. Pentzlin, in such cases, ascribes the contagious property, not to the insect itself, but to adhering virus.

It has been shown by statistical papers, that about thirty-four days are required for the cure of itch in the hospital of the Charité at Berlin; in the hospital of Wismar four, or at most seven, days suffice. In the latter the use of sulphur has been renounced, and an ointment is now adopted, composed of one part of tar and two parts of salt butter, to which, when melted, one part of common potashes is added. The patient is stripped and put to bed, and frictions with the above ointment, repeated every twenty-four hours, are applied over the whole body. Four, or at most seven, applications suffice, and the treatment is finished by a warm bath.

Gräfe and Walther's Journal. Vol. xxiv. 1836.

III. Comparison of the Results from the homœopathic and the common Treatment of the Itch. By Dr. KLEIN, Army Surgeon at Stuttgart.

By command of the government, twenty-eight recruits with the itch were treated, fourteen of them by an homœopathist, Dr. Steinestel, and fourteen in the usual way, by Dr. Klein. The homœopathist, who had at his disposition all the remedies which his system required, gave to his patients, according to his own account, infinitesimal doses of calcaria, sulphur, and the scabietic matter itself; ordered them to be washed with soap and warm water daily; to take a bath frequently, and afterwards, as summer came on, to bathe every day in the Neckar, having rubbed in, previously, all over the body, a portion of sulphurous soap. The results of this treatment, which, whether it was purely homœopathic or not we leave to our readers to decide, were as follows:

6 men were dismissed cured in 10 weeks,	
4 do. — — 13 do.	
1 do. — — 19 do.;	

of these, two suffered a relapse, or were newly infected in a few days, though the homoeopathist had previously denied that either of these events could occur. After having been under treatment for twenty weeks, the remaining three were neither cured nor improved. At this period, the commander of the regiment interdicted all further experiments.

Of the patients intrusted to the care of Dr. Klein, twelve were dismissed cured in fifteen days; one had to be treated fourteen days longer for a subsequent eruption; and the last, with purulent itch, was cured in seven weeks. They were all treated with kali soap, according to Graff's method, which, during the last two and a half years, has been proved, in the garrison hospital at Stuttgart, to be safer and more rapidly productive of a good effect than any other. This soap (which is, properly speaking, an improvement on Graff's,) is composed of kali and train-oil, and is not, like his, of such a stimulating nature as frequently to produce a fresh eruption, after having cured the original complaint.

Wurtemberg Correspondenz-blatt. Band iv.

IV. *On Solutions of Caustic in the Treatment of Scabies, in all its forms.* By M. MALAPERT. Report of MM. ALIBERT, BIETT, and BOUSQUET.

M. Malapert regards the want of cleanliness of the common method employed in the treatment of scabies, and its frequent relapse after such treatment, as strong reasons for the employment of other means, and he has had recourse to the old method of the employment of caustics in this eruption. He says that "any dissolved caustic, which, without altering the healthy portion of the skin, can act directly upon the disease, is capable of curing scabies." The best solvent is water. The number of applications which should be employed must depend on the sensibility of the individual. The comparative value of caustics is stated in the following list:—Caustic potass, soda, corrosive sublimate, sulphuric acid, subcarbonate of potass. The effect of sulphuric acid is most rapid, twelve days being the average time required for cure; but, of nineteen cases, there were four relapses. The corrosive sublimate is the quickest and most certain in its effects; it cures the disease in fifteen days; the proportions employed are, twelve grains to one ounce of water. Potass and soda require another day to affect a cure. The subcarbonate of potass is the slowest in its effects.

Bulletin de l'Academie Royale de Médecine, No. 1. 1836.

Case of an entire Division of the Windpipe, with an almost complete Division of the Gullet, cured. By Dr. MICHAELSEN, of Meldorf.

It chanced to Dr. Michaelsen, during the latter months of his academical career, to witness the treatment of a case of rare occurrence, in which both the larynx and pharynx were completely divided. This patient was under the care of the late Professor Lueders, in February, 1826; and a report of the case, which was treated successfully, will be found in Gräfe and Walther's Journal, band xiii. St. ii. A similar case occurred to Dr. Michaelsen himself in 1830, of which the following is an account.

M. B., a native of Schenefeld, thirty-five years of age, had committed a burglary, and, on being discovered and pursued, he determined on committing suicide. According to his own account, the attempt was made with a common pocket knife, not of large size, and straight and blunt; he held it in his left hand, and drew it thrice across his neck; and he was in the act of repeating the cut when he was seized and prevented.

This occurred on the 30th of June, 1830, at three o'clock in the afternoon. He lost a large quantity of blood, and fainted, and remained without aid for more than three hours. An attempt was then made to relieve the choking paroxysms by the

exhibition of stimulants, such as wine, &c.; and in this way eighteen hours were consumed before medical aid was procured.

On the 1st of July, at mid-day, the man was seen for the first time by Dr. Michaelsen. He had by this time rallied considerably, and breathed through the wound. He expressed himself principally by signs, although he was enabled to articulate a few unintelligible words, when the edges of the wound were approximated by throwing the head forwards. His pulse was regular, and no fever was present; he was able to stand and walk about, but suffered much from a sense of faintness, and expressed a craving for food.

The state of the wounds was as follows:—Externally, the wound of the soft parts extended about four inches in front of the windpipe. The larynx was entirely divided, the inferior portion of the thyroid cartilage being severed from the glottis and epiglottis; and these latter, together with the superior cornua and arytenoid cartilages, remaining in connexion with the tongue. The divided portion of the larynx which remained attached to the trachea was drawn downwards, and corresponded to the inferior margin of the external wound. The pharynx was divided through nearly the whole of its circumference, about a quarter of an inch of its posterior wall alone remaining unsevered.

After a careful cleansing of the wound, its edges were brought together, and kept in apposition by means of the bloody suture; the adaptation being so arranged as to allow of the free exit of any discharge; and, as respiration by the nose and mouth was now perfectly re-established, there was no scruple in leaving the sutures. A linen compress dipped in oil was then applied by way of dressing; and the head being approximated to the breast, was fixed in this position by means of bandages made fast to the nightcap, and carried in a crucial direction over the chest. The patient was then so placed that he was obliged to retain the same fixed position, and two attendants were left in charge of him. The only nourishment allowed him was boiled milk sweetened, which he was enabled to swallow with tolerable facility, unless he took it in too large quantity, when it flowed into the larynx and produced a suffocating cough, subsequently making its escape by the wound. All other food was strictly forbidden, and the attendants were ordered to keep him quiet and silent, and not to neglect a proper ventilation of the room.

On July 3d, the patient appeared comfortable, but, as a violent fit of coughing had occurred, it was thought advisable to examine the state of the wound. On removal of the dressing, it was found that two of the sutures were torn out, and that a quantity of paste was lying in the wound. This was explained by the attendants, who confessed to having supplied the patient with some hard dumplings and pancakes. After carefully cleansing the wound, which did not now gape to more than half its original extent, the edges were again approximated by two strong sutures, and, the bandages being reapplied as before, the attendants received strict orders to confine the patient to milk. There was no febrile excitement, and the pulse was natural. Next day, the sutures remained undisturbed, and the healing was proceeding favorably, there being a thick tenacious discharge from the wound. The man was able to speak, and swallowed without difficulty. Pulse natural; appetite good, bowels regular; slept well. On the 8th, all but the anterior part of the wound was healed. The patient, however, complained much of debility, and coughed with considerable expectoration of mucus. Two of the sutures had again given way, but were not renewed, because position now appeared sufficient to keep the margins of the wound in contact. On the 23d, the wound was quite healed; but the patient complained of a pricking pain in the right side of the throat. For this a few leeches were applied, and subsequently a blister; and on the 25th, (within a month of the receipt of the injury,) the cure was complete.

In concluding the narration of this case, Dr. Michaelsen directs the attention to many points of interest connected with it. He remarks upon the singular fact that the blood-vessels and nerves of the neck, particularly those of the right side, should have been uninjured; and observes, that the present instance, in which a straight knife was employed, combats the opinion held by some that a wound of this nature could only be made by a curved knife. It is also shown by this case,

as Dr. M. observes, that an entire division of the larynx, and an all but complete division of the pharynx, without simultaneous injury of the great blood-vessels or nerves of the neck, must not be classed among those injuries which of necessity produce death, as was taught by the older practitioners. The cure in this instance was singularly perfect, no inconvenience of any sort remaining; and this is the more remarkable from the length of time that elapsed before any medical aid was procured, and in spite of the subsequent interference with the curative process, occasioned by moving the patient, and subjecting him to an examination in which he was forced to exert himself in answering questions, &c. Altogether it is a rare example of the restorative powers of nature, almost unaided by art.

Pfaff's Mittheilungen, &c. Heft xi.-xii. 1836.

MIDWIFERY.

On the Puerperal Fever which prevailed in the Lying-in Hospital at Kiel, from September, 1834, to March, 1835, and during the Winter of 1835-6; and on the Treatment by Ice. By Dr. MICHAELIS.

UNTIL the year 1834, this institution had been almost entirely free from puerperal fever, at least in a malignant form. The situation of the building is very far from being favorable, nor does the arrangement of the wards, &c. appear to be much better. The chief cause of the complaint must be considered to be of an epidemic nature, because, previous to its appearance in the hospital, Dr. M. had seen several cases in private practice; although otherwise it is not frequently witnessed in the district. Several were fatal cases. It is remarkable that each appearance of the disease in the hospital had been preceded by the death of a patient from difficult labour. This was not only the case in the two last epidemics, but also in 1819 and 1830, when an unusual mortality followed similar fatal cases. The contagious nature of the disease was but too evident, and the rapidity of its action almost incredible. Several women, perfectly healthy, came into the hospital in labour, and were scarcely delivered before the disease burst out in full activity. The contagious nature of it was further proved by its resisting every attempt to arrest its progress, until the whole building had undergone a thorough purification and refurbishing. With regard to the mortality, this varied very much, according to whether the patient was attacked immediately after labour, or not until several days had elapsed. In the first case it was very fatal, in the other never. The ovaries appeared to be the chief seat of the disease, and where the pain was first complained of. Abscess of the ovaries and suppuration of the veins were observed in several cases.

The most constant symptoms were anxiety in breathing, from complete inaction of the abdominal muscles; hence the laborious heaving of the thorax, the extreme rapidity of the pulse, at one moment full, at another small; sleeplessness, and the local symptoms of the affection. Diarrhœa alternated with constipation; occasionally vomiting and tympanitis. The profuse and reeking perspirations, and the early appearance of diarrhœa, were not critical; whereas, diarrhœa at a later period seemed to form a decided crisis, and was often exceedingly profuse. Dr. Michaelis observed, as a remarkable fact, that the features of the patient, till the last moment, underwent but little alteration, except that there was an expression of anxiety; she remained conscious to the last; and in most of the fatal cases there was no appearance of delirium.

The treatment required to be varied. Where the disease appeared after the third day, local depletion with leeches, and poultices, were the chief treatment. Bleeding was seldom had recourse to. The secretion of milk was kept up as much as possible, and small doses of calomel internally, or neutral salts where the bowels were confined. This treatment was always effective and sufficient; but in difficult cases, where the patient was attacked shortly after labour,—viz. the first or second day,—Dr. M. found no mode of treatment of any avail in the first epidemic;

not a single patient escaped. Powerful antiphlogistic treatment; calomel in small and then in large doses, smart purging, camphor, turpentine injections, &c. &c. were all equally unsuccessful in producing even the most temporary abatement of the symptoms. It was only by the use of ice that Dr. Michaelis succeeded in saving the last patient who was severely attacked during the first epidemic: it was suggested to him by M. Kirchhoffer, a student, who had seen it used at Copenhagen. Dr. M. used ice both externally and internally. A piece of ice, of about the size of a finger, was given to the patient every half or quarter of an hour, according to her own inclination and the severity of the disease; and this was continued for two or three days. As soon as she began to dislike it, it was stopped. Externally, a very large bullock's bladder, partially filled with pounded ice or snow, was laid upon the abdomen, so that it was covered with a layer of ice an inch in thickness. As soon as the ice was melted, a fresh bladder was applied; and this was continued, according to the patient's feelings, without intermission, for seventy hours. The patients express great relief when this is applied. In some cases the weight of ice was irksome, but this may be relieved by placing some thin cask-hoops across the abdomen beneath the bladder; the weight is by this means more equally diffused. The almost instant effect produced by this application was the feeling expressed by the patient—no remedy has proved so grateful to her feelings as this; and Dr. M. never ventured to employ it without this indication.

The most remarkable change in the symptoms is of the pulse. In the course of a few hours it sinks ten, or even thirty, beats in frequency, and becomes more distinct and free. When this effect was not produced, the case generally soon proved fatal. Other changes followed at a later period,—viz. rest, and sleep for several hours, (sometimes, it is true, the symptoms will return again more violently after it, but still sleep is a most favorable symptom;) cessation of vomiting; return of peristaltic action; after a time the bile again appears in the evacuations. The distended state of the abdomen diminishes, partly from the astringent effects of cold, and partly from discharge of flatus. A profuse watery diarrhoea soon comes on, which appears to be the first effort towards convalescence: this occasionally proceeds to a great extent, but is nevertheless very beneficial. Dr. M. thinks that the powerful application of ice is capable of producing absorption of those immense effusions which take place in the abdominal cavity. In some cases he observed violent pains in the shoulders after the application of the ice, and at a later period, during the patient's recovery, a variety of rheumatic and catarrhal affections; but they were of no serious importance. Dr. M. used no internal remedies in conjunction with the ice. Leeches applied upon the most painful spot, and free venesection, were now of service; whereas this latter, when used at an earlier period, seemed only to accelerate the fatal termination.

The two following cases we select as a specimen of this treatment and of its results, not because they were successful, (for Dr. M. has recorded some fatal cases where ice was employed.) We have selected these two because, from the peculiar circumstances of the case, the exhibition of ice was tried more fairly than in some of the unsuccessful ones.

CASE I. A robust primipara was delivered on the 12th of January, 1836, after an easy and natural labour. She had an early and abundant supply of milk. On the 14th, (third day after delivery,) she was seized with violent pain in the abdomen, preceded by a rigor, and the uterus became very tender to the touch. Twenty leeches and the internal exhibition of ice-pills (*espillen*,*) relieved these symptoms in twenty-four hours.—Jan. 19. Had another rigor and a return of the abdominal symptoms. Pulse 120; great depression of spirits, although otherwise of a remarkably cheerful disposition. Twenty leeches were ordered, and ice-pills.—Jan. 20, (second day of the attack.) Much the same. Still plenty of milk. Bowels opened six times. Repeat the leeches and ice-pills.—Jan. 21, (third day.) Innumerable evacuations; pain less, milk diminished; pulse 100. Continue the

* *Quere*: were these little pieces of ice swallowed, or allowed to melt in the mouth? We must presume the former.—Rzv.

ice.—Jan. 22, (fourth day.) Feels well, except that there is a small spot on the left side of the uterus, which is still painful. Omit the ice.—Jan. 23, (fifth day.) Convalescent; the diarrhœa continues nevertheless. The milk has disappeared, the child having died from apthæ.—The diarrhœa continued profusely until the 29th of January; it then ceased of itself, and the patient's appearance was very good for some days. In the beginning of the following month, she was attacked with inflammation in the veins of the left leg; the veins being hard and excessively painful along the whole limb, but with little fever. Friction with unguent. hydr. ciner. was used until a slight degree of salivation was produced; the symptoms abated, and she left the hospital in good health on the 14th of February.

CASE II. A young woman, æt. 20, in her first pregnancy, who had been under medical treatment (viz. was bled,) a fortnight before on account of bronchitis, was delivered of a healthy child, after a labour of five hours' duration, on the morning of Jan. 27, 1836. The pains were weak, and, although she had recovered from her attack, yet, as she appeared still delicate, she was delivered in bed. The placenta quickly followed the birth of the child, and she felt perfectly well.

Jan. 28, (first day of the attack.) No sleep during the night. After a shivering fit, she was seized with heat, quick breathing, much anxiety, violent thirst, and vomited twice. In the morning, the pulse was 112, full; the abdomen exquisitely tender. Sixteen leeches were applied to the abdomen, followed by poultices; cold water for her drink. Towards evening the symptoms were worse, except a very transient alleviation of pain by the leeches. Iced water; and, at seven o'clock P.M., ice was ordered to be taken every half-hour, and an enema. The pulse had risen to 120.

Jan. 29, (second day.) Very restless during the night; violent pain; three copious feculent evacuations. Towards morning, she slept for two or three hours. At noon, the pulse was 140, full, and hard; determination to the head; the abdomen intensely painful, and already tympanitic; bitter eructations, followed by vomiting of a bitter watery fluid. Let her have ice every quarter of an hour, and be bled to twenty ounces. Towards evening, sixteen leeches were applied to the epigastrium, which had become painful; after which she slept for two hours, during which the pulse fell to 116, soft, and full, with general perspiration.

Jan. 30, (third day.) Has had a bad night. Vomited four times, during which she threw up two worms alive. Bowels open twice. Violent burning pain in the abdomen; vertigo; painful eructation; hiccup; abdomen immensely distended; tympanitic. Pulse 132, full and hard; reeking perspiration; feels that she is dying; much depression of mind. V.S. ad deliquium, (3xvj.) Dislikes the ice, which is therefore stopped. At noon, pulse 132, soft; much anxiety. A large bladder, with snow, was placed over the whole abdomen, (from the scrobiculus cordis to the pubes,) and repeated every half-hour. The application feels very grateful. At her earnest request, she was allowed iced beer for her drink. The favorable effects of this treatment soon manifested themselves: the painful eructations and hiccup ceased, and she had a copious evacuation of whitish grey fæces. Calm sleep for several hours followed; the breathing became deep and quiet; the pulse fell to 108, full and soft; sense of burning diminished.

Jan. 31, (fourth day.) Her night was good until three o'clock, since which she has been restless, has vomited three times, throwing up a quantity of dark-green bile and two more worms. Has passed involuntarily several grey fluid stools. The abdomen was nevertheless not so painful at its lower part, although more distended: on percussion here, it had entirely lost the intestinal sound, *and fluctuation could be distinctly felt.* It was evident that fluid was already extravasated into the abdominal cavity, confirmed by the temporary remission of the symptoms. Much tenderness above the umbilicus; pulse 120, small, hard, compressed. The day followed without any material change. She vomited once a quantity of watery fluid, and another worm. Several watery grey-coloured stools were passed involuntarily. Hitherto, during the whole course of the attack, the child had been regularly applied to the breast, and appeared to obtain milk, although the breast was somewhat flaccid. The lochia had entirely ceased. The expression of her countenance was still tolerably good.

Feb. 1, (fifth day.) She passed a good night until four o'clock, dozing. Very frequent evacuations, for the first time of a yellow colour, showing that the peristaltic motion had returned. Violent stitch in both shoulders. Abdomen somewhat less; fluctuation disappeared; epigastrium less painful. It was attempted to leave off the application of ice to the abdomen, having been persevered in for forty-four hours; but she had scarcely passed an hour before the burning sensation in the abdomen returned, with painful eructations and anxiety; the ice-bladders were therefore again applied, and repeated every hour. The day passed favorably. She dozed a good deal, passed some flatus and innumerable involuntary evacuations. Pulse 120: in the morning it was small, hard, and compressed; in the evening soft, somewhat empty, but less compressed. Features sunken. She expressed a wish for lemon-juice and water as a drink.

Feb. 2, (sixth day.) Passed a good night until three o'clock; after which was restless, and complained of pain in the right hypochondrium, which is distended and hard. Innumerable evacuations passed involuntarily; has an expression of suffering; pulse 120, hard, small, and compressed. At noon she wished to leave off the applications of ice, which had been continued, with a very short interval, for three days. Eructation followed, and the pulse rose to 128; the evacuations contain dark green bile.

Feb. 3, (seventh day.) The evacuations ceased during the night; this was followed by restlessness and sensation of burning. Ice was therefore again applied twice, and this was followed by green evacuations, and quiet. In the morning she felt tolerably well; her spirits have returned. The abdomen is almost entirely without pain on pressure, and but slightly distended. Pulse 120, hard; otherwise good. She expressed a wish for stewed prunes (*Pflaumen suppe*), with lemon juice, which she took with relish. Since yesterday the breasts have become somewhat larger; the lactiferous tubes may be distinctly felt. In the evening, after putting on clean linen, she felt comfortable. Her only complaint is of hunger. Has passed the first voluntary evacuations for the last four days; they are still frequent, but less copious.

Feb. 4, (eighth day.) Feels well. Evacuations, although frequent, are now again feculent; pulse 110. At nine in the evening, the burning sensation in the abdomen suddenly returned, with anxious breathing, during which the thorax alone acts, the abdomen and diaphragm being perfectly motionless. Sensation of suffocation; pulse 123, hard, and suppressed; the look is vacant, with slight strabismus. At half-past ten a bladder was applied to the abdomen, which immediately relieved every symptom.

Feb. 5 to 9, (ninth to thirteenth day.) On the whole she continues to improve. Sharp pains in the abdomen continued to appear occasionally; for which fomentations of brandy, and afterwards washing with cold vinegar and water, seemed useful. Hitherto the bowels had been opened more than six times every day; when this was not the case, she did not feel so well. The feces and urine generally pass involuntarily, and sometimes unconsciously. The urine now resembles milk, slightly tinged with blood. Although the tongue is brown and dry, her appetite is tolerably good, and she has taken some bread with the prunes. Pulse still 110. Although the nipples are very sore, she continues to suckle her child. Has taken no medicine, as nature was evidently capable of effecting the process of absorption. The condition of the abdomen, as also her former symptoms, leave no doubt as to the existence of extensive effusions of coagulable lymph. At a later period these could be felt distinctly.

Feb. 10 to 16, (fourteenth to twentieth day.) The milk has disappeared; she improves slowly; her appetite has not yet returned. Excretions, for the most part, are natural; two or three evacuations daily, increased in quantity. Occasional inability to pass water; slight cough.

March 10. Was discharged. Still weak, and with distinct indurations here and there in the abdomen. This was carefully examined about the end of February, when adhesions of the bowels were distinctly traced, under the form of hard compact tumours. These filled the whole abdominal cavity below the anterior

and superior spinous process of the ilium; an indurated mass, as large as a fist, could also be felt beneath the right lobe of the liver. Towards the end of the month she suffered frequently from vomiting, diarrhoea, and want of appetite; the urine became as thick as milk, and during this state the indurations became much softer; that of the liver alone could be felt when she left the hospital. As these attacks of vomiting seemed evidently a part of the sanitory process of nature, especially as the pulse always became more quiet, no medicine was given to stop it: the abdomen was well covered with flannel, and frictions used with volatile liniment.

Neue Zeitschrift für Geburtshülfe. Vol. iv. No. 3. 1836.

Case of Cæsarean Section, performed with success for the fourth time on the same Individual. By Dr. MICHAELIS, of Kiel.

AN account of the three preceding operations, and of the case generally, is given in our second volume, p. 270. The first operation was performed in June, 1826, the woman being then in her twenty-ninth year; the second in January, 1830; the third in March, 1832. This woman became once more pregnant, and, the operation being equally necessary as before, it was performed by Dr. Michaelis, on the 27th June, 1836, after the patient had been in labour three days. The new incision intersected the second and third cicatrices, and the uterus had become so completely adherent to the abdominal parietes that the peritoneal cavity was not laid open. On the third day after the operation, the patient was threatened with alarming symptoms of peritonitis, accompanied by tympanitis, which speedily yielded to the internal exhibition of ice and a few doses of calomel. The external wound could not heal, on account of the gaping of the uterine opening, which kept apart the adherent margins of the divided skin, and thus converted the wound of both integument and uterus into a single symmetrical aperture. On the 1st of August, (the period at which the last report is dated,) the uterine aperture was rather more than half an inch in extent; and this diminution appeared to be solely dependent on the gradual contraction of the uterus, inasmuch as the healing process itself was not then contemplated. Nevertheless, the patient left her bed daily, and her general health was good. She herself suckled her child, which was thriving well.

[An interesting point connected with this case is the occurrence of peritonitis after the fourth operation, in which instance alone, it will be remarked, the serous sac was *not* opened, and was therefore unexposed to the influence of external agents, as the atmospheric air, &c.]

A medical friend suggests the expediency, in cases of hopeless deformity of the pelvis, that the fallopian tubes should be divided during the Cæsarean operation: in the event of a successful result to the operation, this proceeding would, of course, do away with all risk of a second.]

Pfaff's Mittheilungen. Heft vii.-viii. 1836.

MEDICAL JURISPRUDENCE.

Cases of Infanticide, with Remarks.

[THE great importance of the subject, and the interesting nature of the details communicated, are, we conceive, sufficient excuse for the extent and minuteness with which we have reported the following cases. They form an appropriate appendix to the Article on *Infanticide* in our last Number.]

CASE I. *Reported by Dr. SCHRECK, of Grünstadt.*

On the 7th November, 1833, the body of a new-born female child was found concealed in a house at Grünstadt, under suspicious circumstances. The medico-legal examination took place on the 8th, and the following appearances were met with:—The body measured twenty inches in length, and weighed about five pounds and a half. The umbilical cord, which had been torn across the middle, was of about the average length. The head was well covered with short hair, and the

nails were perfect, especially those of the fingers. The skin of the lower and fore part of the neck was discoloured, as if from violent handling; and on the right side were five small black spots apparently resulting from the pressure of fingers. On cutting through the skin at this part, the discoloration was found to extend throughout all the layers. The most important marks of violence were, however, in the face. The cheeks were torn through from the angles of the mouth to the ears. The lower jaw was fractured into three pieces; and the cornua of the os hyoides were torn from the soft parts and forced backwards. Blood was found extravasated beneath the scalp, as also on the surface of the brain.

On removing the parietes of the chest, the lungs were seen lying at the back of that cavity, and only covering a small part of the pericardium laterally. They were of a pinkish red colour, but their anterior surface was darker than the posterior. The lungs, when placed on water, with the heart and thymus attached, floated almost on a level with the surface of the liquid. The lungs, when detached, weighed about two ounces and a half. On cutting them into pieces, there was no evident crepitation from the escape of air. These pieces readily floated on water. The foramen ovale and ductus arteriosus were open and pervious, as in the fetal state. The abdomen presented nothing unusual; but meconium was found in the whole tract of the colon.

The medical opinion given from the result of this examination led to the trial of the mother for the alleged murder of her child, before the Assize Court of Zweibrücken, on the 6th March, 1834.

The medical evidence adduced on the occasion was to the following effect:

1. The child was born alive.
2. The child was born capable of living.
3. It had died a violent death.
4. That, very probably, the marks of violence observed on its body might not have been wilfully inflicted, but produced by the violent efforts of the mother, in endeavouring to accomplish her own delivery.

The first three points, the witnesses alleged, admitted of an easy exposition.

1. That the child was born *alive* was proved not only by the state of the lungs, but by the appearance of the marks of violence about the face and neck. The fact of the ecchymosis extending through the whole of the substance of the skin was a manifest proof that, at the time these marks were produced, a complete circulation of the blood was going on in the body. That respiration had not been carried on long was proved by the imperfect dilatation of the lungs and the perviousness of the foramen ovale and ductus arteriosus.

2. That the child was born *capable of living* might be determined from its general characters. There was no defect in its organization. At the same time, the incomplete state of the cartilages of the ears and of the nails of the toes, as well as the fact of its weight not exceeding five pounds and a half, were circumstances which rendered it probable that it was not quite mature.

3. The marks of *violence* found on the body were undoubtedly the cause of death. The laceration of the cheeks, the fractures of the lower jaw, and the displacement of the os hyoides, proved that very great force must have been used. The displacement of the larynx would have interrupted the respiratory process; and, taking the whole of the injuries together, they were such as must speedily have destroyed life.

4. In relation to this point, the chief medical witness stated in court that he had not met with any instance in the records of medical jurisprudence where a new-born child had been wilfully destroyed in a manner similar to this. It was rare that the marks of criminal violence on the bodies of children were of so extensive and severe a nature.

The violence he observed, may be supposed to have resulted from a forcible pulling of the head during delivery, and the compression which the shoulders and hips might at the same time have experienced would account for the discolorations found on those parts of the body. It was easy to imagine that a female, wholly unacquainted with the process, might, during a protraction of her sufferings, be

driven to such a state of frenzy and excitement as to induce her to tear her offspring with violence from her. The accused in this case may have made such attempts, and thus have unintentionally produced the marks of fatal violence. In relation to the protraction of delivery, it was admitted that the pelvis of the mother was of the natural dimensions; and that, had the position of the child been such as is commonly observed, the delivery must have taken place without difficulty, especially since the body was small. But the witness argued that the delivery might have been protracted by a malposition of the child; that the head might have protruded, while the shoulders remained fixed. He then proceeded to assume that the accused might have introduced her fingers into the child's mouth, and in her efforts at self-delivery have accidentally caused the lacerations and fractures.

The court having left it to the jury to say whether the prisoner had wilfully destroyed her child, a verdict was returned to the effect that she had killed it not wilfully, but through imprudence and neglect.

[*Remarks.* In this case, the fact of the child having *lived* appears to us to have been clearly established, directly by the experiments on the lungs, and indirectly by the vital characters of the marks of violence on the body. These marks might, however, have presented precisely similar characters, even had the child not breathed, so that the evidence derived from the circumstance of the whole of the layers of the skin being penetrated by blood would have been of little value, had it not been corroborated by the use of the hydrostatic test.

2. The second question which the witnesses had to answer upon the trial is founded on a principle peculiar to the laws of certain parts of the continent; namely, whether the child was born *capable of living*, (*lebensfähig, viable.*) This capability of living is usually determined by noting whether a child be born with all its organs perfect and healthy, and at a due period of gestation. To those who are acquainted with the jurisprudence of this country it must appear extraordinary that such a preliminary proof should be required in a question of child-murder. The capability of living in this child is fully established by the proofs of development described in the examination.

3. That the child was destroyed by violence is sufficiently clear from the medico-legal report.

4. With regard to the origin of this violence, we are inclined to think, that Dr. Schreck's explanation of the circumstances, although highly ingenious, and certainly within the range of *possibility*, was a little too constrained. It is probable, however, that other moral evidence was adduced to show that the mother had no intention of destroying her child, and that it was unlikely from circumstances she had done this wilfully or with criminal intention. In her case every fact was favorable to a rapid delivery; it was assumed that the process might have become protracted from malposition of the child after protrusion of the head. But it is not often we find, in a well-formed pelvis, and under a head-presentation, that such violent and extensive injuries are required to be inflicted, in order to expedite delivery.

The jury virtually acquitted the prisoner of infanticide, and found her guilty of involuntary homicide, a crime which would correspond in our law to one description of manslaughter.]

CASE II. *Reported by PROFESSOR VON SIEBOLD, of Göttingen.*

[We have been induced to select this case from the singular resemblance which it bears in its details to the preceding, and from the very different conclusion to which the medical examiners came respecting the origin of the marks of violence on the child.]

The prisoner, a well-formed female, was secretly delivered on the night of the 23d July, 1834. Suspicion having been strongly excited against her, the body of the child underwent a medico-legal examination. It was of the male sex, and had apparently reached the full period. The umbilical cord had been forcibly torn through. There was a laceration, extending through the right cheek from the corner of the mouth to the ear. Both of the rami of the lower jaw were broken,

and the right ramus was dislocated. The skin of the neck was swollen and of a greenish blue colour. A considerable laceration extended from the mouth downwards to behind the first bone of the sternum: by this the larynx and trachea had been forced away from the soft structures, and the œsophagus had been torn through. Blood was extravasated in all the parts around. Coagula of blood were found beneath the skin of the scalp. Both of the parietal bones were fractured, the right especially; its central portion presenting several loose osseous fragments. The contents of the cranium, thorax, and abdomen were free from all abnormal appearances. The experiments performed with the lungs clearly showed that the child had breathed.

The statement of the prisoner was, that she felt the motions of the child the day previous to her delivery; but that it did not seem to be alive at its birth. She ascribed the marks of violence on its body to the efforts which she had made to deliver herself. When she felt the head issuing she stated that she introduced her hand into its mouth and pulled violently, by which something seemed to give way. To this she attributed the laceration of the cheek and neck, and the fractures of the jaw. These efforts at self-delivery were made while she was in the *recumbent posture*. She did not observe that the child breathed or cried at any time. After her delivery she tore asunder the umbilical cord, and then placed the dead body in the straw beneath the bed.

From the result of the inspection the following report was made:

1. The child was mature and born capable of living.
2. It lived before and during birth.

This inference was derived from the absence of putrefaction, which showed that the child had recently lived, and from the experiments performed on the lungs.

3. It is also highly probable that the child had lived and breathed after its birth.

This presumption was derived from the roundness and width of the chest; from the dilatation of the lungs, the pericardium being covered by the right lung; from the crepitation, escape of air on pressure, and absolute weight of these organs; and, lastly, from their complete buoyancy in water, as well with the heart and thymus attached as when they were divided into numerous small pieces.

In relation to the objection that the child might have breathed during delivery, it was contended that, as the woman had already borne a child, and the labour, according to her own statement, was rapid, it was improbable that any delay should have taken place in the birth of the body after the passage of the head. At the same time, it was admitted that no *positive* opinion could be given on this point. On the other hand, the life of the child after its birth was rendered probable by the evident discharge of meconium, and by the ecchymosis and other characters of the violence existing on the body. That the child had been wilfully and violently destroyed was, in the opinion of the examiners, proved by the serious injuries to the head and neck, and by the laceration of the untied umbilical cord. It is contended that the mother could not, for the purpose stated by her, so have applied her hand as to break and dislocate the jaw, lacerate the cheek and œsophagus, and, at the same time, force the trachea and larynx down towards the thorax. The employment of the hand for the purpose of self-delivery was not likely to have produced such extensive and varied effects. The direction of the marks of violence on the neck was such as to lead to the belief that, in producing it, the child's head would rather have been forced backwards into the passage than drawn outwards. Again, had the hand been introduced into the mouth, in the manner and for the purpose stated, some violence would most probably have been done to the upper jaw and palate: but there were no traces of violence to these parts. Finally, they declared that the child had died in consequence of the injuries which it had sustained.

The advocate who defended the accused raised some objections to the opinions expressed by the examiners; and the court accordingly referred to the Medical Faculty of G— for answers to the following questions:

1. Whether respiration might not have been set up prior to birth by the prisoner,

in her alleged efforts at self-delivery, accidentally conveying air to the mouth of the child?

2. Whether the prisoner could have produced the injuries to the jaw and face, in the manner stated by her, during delivery; whether, in this case, there ought or ought not to have been marks of violence on the upper jaw and palate.

The faculty answered the first question by stating that the child, setting aside the efforts alleged to have been made by the mother, might have breathed so soon as its head was born. The introduction of her hand into the child's mouth might also have facilitated the establishment of respiration.

In answering the second question, they stated it as their opinion that, from the depositions, the delivery must have been throughout natural, easy, and rapid; that such violent efforts at self-delivery were not from the circumstances likely to have been required; that if, as the prisoner affirmed, she was in the recumbent position, she could not so have employed her hands, as to produce the severe injuries on the child, or have seen the process, so as to know in what direction the head and the face lay. It was wholly improbable, that the injuries should have been produced in the manner described by her. The violence to the lower jaw, if caused by the attempts at self-delivery, would most probably have been accompanied by corresponding violence to the upper jaw. Admitting that these extensive injuries had been produced by the prisoner during the birth of her child, it is certain that she must have employed a much greater degree of violence than any female in her situation, for the mere purpose of aiding delivery, was likely to have employed.

[Remarks. This case forms an excellent contrast to the preceding. In the first, the whole of the talent of the examiner was put in requisition in order to make out a defence for the prisoner on bare possibilities. In the second, the prisoner herself raised this defence. We do not see that there existed any want of humanity in those who conducted the last investigation; but we recognize in the solid reasons which they adduce in support of their opinions respecting the wilful and probably criminal origin of the violence, a stern desire to uphold justice without favour or partiality. This is, in our view, as it should be: a medical jurist is not called upon to judge of a crime or of its punishment, but to determine upon the consistency and correctness of the medical evidence required to support it. If a Court of Law were to admit every plausible hypothesis or possible conjecture that a clever witness could put forward on trials for murder, and were to act upon such admission, it is certain that but few convictions would take place. The framing of laws for the repression of crime would indeed become a vain and fruitless task, if a jury were not permitted to take a common-sense view of the medical and other facts proved.

In this case, the faculty, in their decision, made every reasonable allowance for the condition of the woman, and for the efforts which she might have made during delivery: but her own account of the labour was inconsistent with the idea that such efforts should have been required, or, if required, that they could possibly have been attended with the whole of the marks of violence found on the body of her child. Besides, we must regard it as rather the character of guilt than of innocence that she should have afterwards concealed the child. The circumstantiality with which she described the progress of her labour, as also the manner in which, according to her own view, each injury or mark of violence was to be accounted for—the remaining, according to her own account, the whole of the time in a recumbent position,—are points which tell very little in favour of her innocence.]

Henke's Zeitschrift für die Staatsarzneikunde. 1836.

MEDICAL STATISTICS.

Statistical Remarks on the Diseases peculiar to Women. By S. TANCHOU.

M. TANCHOU entertained an opinion that the diseases peculiar to women were daily increasing; and, to convince himself of the fact, he examined the Bills of Mortality of Paris and the suburbs, which gave the following results:

In 1830, in the department of the Seine, 351 females died of sexual diseases; of which, 183 were cancer of the uterus.

In 1831, 379; of which, 246 were cancer.

1832, 396; — 230 —

1833, 498; — 250 —

1834, 436; — 304 —

1835, 508; — 285 —

Total, 2,568 females dead of sexual diseases; of which, 1,500 were cancer of the uterus.

M. T. enters into some discussions concerning the particular departments which furnish the greatest number of cases, and endeavours to assign the cause.

The following table, arranged according to the age, shows the period of life at which these diseases are most frequent:

Before twenty years, there were 25 cases of disease of the sexual organs, and not one of cancer.

From 20 to 30, 442 sexual diseases, and 86 cancer		
30 .. 40, 279	—	212 —
40 .. 50, 137	—	402 —
50 .. 60, 70	—	353 —
60 .. 70, 60	—	242 —
70 .. 80, 42	—	147 —
80 .. 90, 13	—	58 —

By this we see that, during the first twenty years of life, cancer of the sexual organs is unknown, and that even other diseases of these parts are rare; whilst, from twenty to thirty, cancer increases; and that, from thirty to forty, the cases of cancer have increased so much as to be nearly equal to the cases of sexual disease.

Journal des Connaissances Médicales. November, 1836.

ANIMAL CHEMISTRY.

A Process for discovering Pus in the Blood. By M. MAUDL.

M. M. observes, that ammonia, considered by a great number of physiologists as a proper reagent for the detection of pus, is not so; for, if it changes this liquid into a transparent jelly, it transforms the blood almost in the same manner. The means proposed by M. Maudl consists in separating the fibrine of the blood by heating it with a glass rod. If the blood is pure, and not yet formed into a clot, the rod is soon found covered with an elastic membrane, leaving, when pressed under the finger, a sensation analogous to that which wet elastic gum produces. This membrane, of a red colour, passes, with washing, through a series of tints, less and less deep, and becomes yellowish. If, on the contrary, pus in a very small quantity is found mixed with the blood, it does not form around the rod an entire membrane, but an accumulation of filamentous shreds deprived of elasticity. If the quantity of pus is still more considerable, it neither forms membranes nor filamentous shreds, and the blood left at rest does not form a clot.

Revue Médicale. Mars, 1837.

PHARMACY.

Improved Method of Manufacturing the Ung. Hydrarg. fort.

By M. BOUTIGNY, Apothecary at Evreux.

A POUND of mercury, with two ounces of oil of turpentine, is put into a tenuous flask, which is then carefully corked; the bottle is well shaken for half an hour. The heterogeneous mixture is then poured into a marble mortar, furnished with a wooden pestle, and actively and incessantly triturated for twelve hours with one pound of lard: if globules are discoverable the next day, the trituration must be recommenced. Two days generally suffice. The advantages gained by this method are not unimportant: 1st, economy in time; 2d, the employment of fresh lard; 3d, the absence of foreign bodies in the composition; for the volatile oil is evaporated ere the proceeding is terminated, with the exception, at least, of a slight odour of turpentine.

Bulletin gen. de Thérap. Jan. 1837.

PART FOURTH.

Selections from the British Journals.

(FOR THE QUARTER ENDING SEPTEMBER 30, 1837.)

ANATOMY AND PHYSIOLOGY.

On the first changes in the Ova of the Mammifera, in consequence of Impregnation; and of the mode of Origin of the Chorion. By THOMAS WHARTON JONES, Esq. (Read before the Royal Society, April 27, 1837.)

THE author having, in a former paper, described the structure of the unimpregnated ovum of mammiferous animals, now proceeds to investigate the changes which the ovum undergoes in consequence of impregnation. In the rabbit, the first perceptible difference is the addition of a thick gelatinous matter surrounding the parts of which the ovum was composed in its original state, and apparently derived from the ovaries. In the progress of development the vitellary membrane gives way, as happens in the ova of the newt, and of many of the oviparous animals. The gelatinous envelope acquired in the ovary, and which is more especially circumscribed and defined after impregnation, constitutes the only covering of the vascular blastodermis, after the giving way of the vitellary membrane, and afterwards forms the chorion, which in rodent animals, at a further stage of development, presents itself under the form of a thin and transparent membrane, very similar to the vitellary membrane of a bird's egg, and situated immediately outside the non-vascular and reflected layer of the umbilical or erythroid vesicle. The author draws similar conclusions with regard to the development of the human ovum.

The second part of the paper relates to the changes taking place in the vitellus, the inferences concerning which are deduced chiefly from observations of the development of the ova of batrachian reptiles. The author concludes that the disappearance of the germinal vesicle is prior to impregnation. In the newt, the vesicle, at first imbedded in the substance of the yolk, gradually approaches the surface, until its situation is immediately underneath the vitellary membrane: its coat, having now become very soft, gives way, allowing the contained fluid to be effused on the surrounding surface of the yolk; and the small depression in which the vesicle was lodged now forms the cicatricula. The effused fluid gives a degree of consistence to the matter composing the surface of the yolk, and thus promotes the formation of the blastodermis. In the frog, the surface of the yolk becomes every day more and more broken up, and the resulting crystalline forms described by Prevost and Dumas become smaller and smaller, until the surface of the black blastodermis appears under a magnifying glass like shagreen. The blastodermis, consisting of an aggregation of clear globules, different from those of the rest of the yolk, is now fully formed, and has extended itself so as to close in the white spot. The change which takes place in the yolk of the bird's egg appears to be limited to the neighbourhood of the cicatricula.

Proceedings of the Royal Society, No. xxix.

On the Temperature of Insects, and its Connexion with the Functions of Respiration and Circulation. By GEORGE NEWPORT, Esq. (Read before the Royal Society, June 15, 1837.)

THE author states at the commencement of his paper, that, although it has been long known that insects living in society, as the bee and the ant, maintain in their,

habitations a temperature higher than that of the open air, the fact had never yet been established that individual insects of every kind possess a more elevated temperature than that of the medium in which they reside, and that in each species the degree of elevation varies in the different stages of their existence. He was first led to study the temperature of insects in consequence of the curious results which he had met with in some observations he had himself made, in the autumn of the year 1832, on a species of wild bee in its natural haunts, with a view to ascertain, as had been suggested to him by Dr. Marshall Hall, the relation between the temperature of these insects during their hybernation, and the irritability of their muscular fibre: but the fact of the existence of a higher temperature in individual insects had been ascertained by himself prior to these observations; the results of which observations, together with other facts connected with the physiology of insects, he subsequently communicated to Dr. M. Hall.

Since the time when the author has been engaged in the prosecution of this enquiry, some observations on the same subject have been published by Dr. Berthold, of Göttingen, who expresses it as his opinion that insects ought not to be regarded as cold-blooded animals, but who does not appear to have detected the existence of a temperature higher than the surrounding medium in any individual insect.

The author gives a detailed account of his observations on the temperature of insects in their several states of larva, pupa, and imago, from which it appears that those which possess the highest temperature are always volant insects, and are chiefly diurnal species, residing almost constantly in the open air. He shows that the larva has a lower temperature than the imago, and that the energy of its respiration is also less, regard being had to the activity of the insect, and to the size of its body. In lepidopterous insects the average elevation of temperature above that of its surrounding medium, is in the larva from $0^{\circ}.9$ to $1^{\circ}.5$; while in the imago it is from 5° to 10° . Among the hymenoptera it is from 2° to 4° in the larva, and in the imago from 4° to 15° or even 20° ; but in all cases the amount of this elevation is shown to depend on the degree of activity, and the quantity of air respired during a given period. The author then enquires into the influence of various circumstances, such as inactivity, sleep, hybernation, and inordinate excitement, on the temperature of insects; and shows that the evolution of heat gradually diminishes in a degree corresponding to the length of time during which the insect remains in a state of repose, but that it is immediately increased as soon as the insect is roused into action. He adverts also to the remote cause of hybernation, which he ascribes, in every state of the insect, to accumulations of adipose matter, or of nutrient fluid, which, being stored up in the system, induce a plethoric state, from which the animal is aroused when this store of materials has been exhausted. A variety of experiments are related, tending to prove that a large proportion of the heat evolved by an insect, when in a state of great activity, is dissipated into the surrounding medium, and that the quantity of heat so generated bears definite relations to the habits, the locality, and the energy of respiration in each respective species of insect. Volant insects, he finds, have the highest temperature; and of these the diurnal bear a higher temperature than the crepuscular; next to these must be placed the diurnal terrestrial, and last of all the nocturnal terrestrial species.

In the next division of this paper the author considers the temperature of those insects which live in societies; and in particular of the humble bee and the hive-bee. His observations are confirmatory of many of those of Huber relating to the incubating habits of the former of these species; and he has farther ascertained that during the act of incubation the bees possess a voluntary power of generating heat, whereby the temperature of their bodies is raised, apparently for the purpose of imparting warmth to the young in the cells; that this process is accompanied by accelerated respiration; and that the amount of heat evolved is proportional to the quantity of air respired. The law established by Dr. Edwards in the case of the young of mammiferous animals, namely, that they possess less power of generating heat, and that for a certain time they are unable to maintain their usual tempera-

ture, is shown by the author to be equally applicable to the early stage of insect life, and also to the perfect insect immediately after its development from the pupa.

The temperature of the hive-bee is next examined, and it is shown, contrary to the statements of Reaumur, Huber, and others, that bees do not maintain a very high temperature in their hives during winter, but that they are disposed, when not disturbed by any occasional vicissitudes of atmospheric temperature, to assume the state of hybernation; although, on the other hand, when the bees are much disturbed, the temperature of the hive may, even in the midst of winter, become greatly raised. The temperature of the hive is lowest in January, and gradually increases up to the period of swarming, in May or June, after which time it diminishes. A table is given exhibiting the results of successive observations on the influence of the diminution of heat and of light which attended the progress of the annular eclipse of the sun on the 15th of May, 1836, on the temperature of the hive.

It appears from the enquiries of the author that different parts of the hive do not preserve the same relative heat among one another at different periods, and also that the amount of free heat in the hive is often 10° or 15° , even in the months of July and August.

The remaining division of the paper is devoted to the consideration of the connexion existing between the development of heat and the functions of respiration, circulation, and digestion. The state of the pulse during all the different stages of the larva until its metamorphosis into the pupa is examined with great minuteness, and the results are given in a tabular form. The author traces the rate of pulsation during different conditions of repose and activity, and the corresponding frequency of respirations, and finds that although there is a general accordance between the activity of these two functions, yet that the activity of respiration and the quantity of heat evolved do not depend primarily on the velocity of the circulation, but that under all circumstances the quantity of heat developed is exactly proportional to the quantity of respiration. While the insect is feeding, and digestion is going on, the evolution of heat increases, and while it is fasting it diminishes; but this diminution has a limit, whereas increased respiration is invariably attended by increased heat. Gaseous matter is exhaled in great abundance from the surface of the body of an insect, and contributes to regulate and equalize its temperature; but the quantity diminishes in proportion to the length of time during which it has been deprived of food. The author maintains that animal heat is not an effect of mere nervous influence, either general or ganglionic; an opinion which he derives from the following considerations: first, that in many insects in which considerable degrees of heat are evolved, and the respiration is energetic, the nervous system is small compared with that of others in which the respiration is less vigorous; and secondly, that if the evolution of animal heat were dependent on the existence of ganglia, the leech ought to generate more heat than the larva of the lepidoptera, since it has a much greater number of ganglia. Hence he is disposed to draw the general conclusion that animal heat results directly from the changes which take place during respiration; and that the reason why so large a quantity passes off so rapidly from the body of an insect is because it does not become latent, since the circulating fluid, unlike what takes place in the higher animals, is neither completely venous nor completely arterial, but of a character intermediate between both.

Twenty-one tables are annexed exhibiting the records of the experiments referred to in the paper on the respiration, temperature, and circulation of insects.

Proceedings of the Royal Society, No. xxix.

On the Brain of the Negro, compared with that of the European and the Ourang-Outang. By FREDERICK TIEDEMANN, M.D., Professor of Anatomy and Physiology in the University of Heidelberg. (Read before the Royal Society, June 9, 1836.)

It has long been the prevailing opinion among naturalists that the Negro race is inferior, both in organization and in intellectual powers, to the European; and

that, in all the points of difference, it exhibits an approach to the Monkey tribes. The object of the present paper is to institute a rigid enquiry into the validity of this opinion. The author has, for this purpose, examined an immense number of brains of persons of different sexes, of various ages, and belonging to different varieties of the human race, both by ascertaining their exact weight, and also by accurate measurement of the capacity of the cavity of the cranium; and has arrived at the following conclusions. The weight of the brain of an adult male European varies from 3lbs. 3 oz. to 4lbs. 11 oz. troy weight: that of the female weighs, on an average, from four to eight ounces less than that of the male. The brain usually attains its full dimensions at the age of seven or eight; and decreases in size in old age. At the time of birth, the brain bears a larger proportion to the size of the body than at any subsequent period of life, being then as one-sixth of the total weight; at two years of age it is one-fourteenth; at three, one-eighteenth; at fifteen, one twenty-fourth; and in the adult period, that is, from the age of twenty to that of seventy, it is generally within the limits of one thirty-fifth and one forty-fifth. In the case of adults, however, this proportion is much regulated by the condition of the body as to corpulence; being in thin persons from one twenty-second to one twenty-seventh, and in fat persons often only one fiftieth, or even one hundredth of the total weight of the body. The brain has been found to be particularly large in some individuals possessed of extraordinary mental capacity. No perceptible difference exists either in the average weight or the average size of the brain of the Negro and of the European: and the nerves are not larger, relatively to the size of the brain, in the former than in the latter. In the external form of the brain of the Negro a very slight difference only can be traced from that of the European; but there is absolutely no difference whatsoever in its internal structure, nor does the Negro brain exhibit any greater resemblance to that of the ourang-outang than the brain of the European, excepting, perhaps, in the more symmetrical disposition of its convolutions.

Many of the results which the author has thus deduced from his researches are at variance with the received opinions relative to the presumed inferiority of the Negro structure, both in the conformation and relative dimensions of the brain; and he ascribes the erroneous notions which have been hitherto entertained on these subjects chiefly to prejudice created by the circumstance that the facial angle in the negro is smaller than in the European, and consequently makes, in this respect, an approach to that of the ape, in which it is still farther diminished. The author denies that there is any innate difference in the intellectual faculties of these two varieties of the human race; and maintains that the apparent inferiority of the Negro is altogether the result of the demoralizing influence of slavery, and of the long-continued oppression and cruelty which have been exercised towards this unhappy portion of mankind by their more early civilized, and consequently more successful competitors for the dominion of the world.

Proceedings of the Royal Society, No. xxvi.

On the Voluntary and Instinctive Actions of Living Beings.

By WILLIAM B. CARPENTER, Esq. M.R.C.S. &c.

THIS paper, the substance of which was originally read to the Royal Medical Society of Edinburgh, of which society Mr. Carpenter was the senior president, is of great interest both in a physiological and psychological point of view, and proves the author's powers in the investigation of such subjects, to be of a very superior order. We expect yet greater things from his acute, well-disciplined and well-directed mind. We can only, in this place, find room for the general summary of the positions advanced in the memoir, to which we refer the reader.

"1. Many living tissues possess the property of contractility upon the application of a stimulus.

"2. This contractility is especially manifested by the irritable parts of certain vegetables; and results in all these cases from the action of a stimulus either directly applied or conveyed through the circulating system.

"3. This contractility is also especially manifested by the muscular fibre of animals, and may in them be called into play not only by the stimuli which act upon plants, but by another of a peculiar nature, commonly denominated nervous influence.

"4. Whatever actions (whether consisting of visible motions or not) are performed by the tissues of plants, may be regarded as the direct response of their organism to external stimuli, and as solely connected with their organic life.

"5. All the actions (whether consisting of visible motions or not) essential to the organic life of animals, are in like manner produced by the *immediate* action of external stimuli;* and being entirely involuntary, may be called *organic instincts*. Under this head are included (besides many less apparent changes,) the motions of the heart and alimentary canal.

"6. The first office of the nervous system is to convey to a distant part the *impressions* made upon it, and to produce (by its *stimulation* of the contractile tissues) motions necessarily connected with them. These actions, being purely instinctive and involuntary, may be called *excito-motor instincts*.

"7. All that is required for these manifestations is the completeness of the circle of concentric and excentric nerves. In vertebrated animals, the cerebro-spinal axis and nerves proceeding from it are of course solely concerned in this function.

"8. In the lowest animals possessing a simple nervous system, these actions make up the greatest part of the sum of the life of the individual; and in the higher, they are immediately connected with the supply of the organic instincts.

"9. Where a more complicated nervous system exists, the impressions give rise to mental changes termed *sensations*, the seat of which is some part of the cerebral mass in the vertebrata, and probably the ganglia connected with the nerves of sense in the invertebrata. With various sensations, certain involuntary motions are instinctively associated; but as *sensation*, a mental change in the sensorium, cannot immediately give rise to *stimulation*, an organic change at the extremities of the nerves, a *motive action* must be propagated from the sensorium along the nervous conductors, and this cannot result from an external impression wherever sensation does not exist. The instinctive actions thus resulting are still purely involuntary, although they may be controlled in man by the higher power of the will. Certain habitual actions may come to take place nearly in the same circle, which may be called that of *sensori-motor instincts*.

"10. Voluntary actions require *perceptions* in addition to sensations and impressions. Perceptions give rise to mental processes terminating in *volition*, which produces motive action and stimulation. Volition is of course confined to the brain, and probably to the cerebral lobes.

"11. No distinct division of the spinal marrow is necessary for the performance of the excito-motor, or sensori-motor instinctive actions. The same nervous matter may act as a conductor either to the influence of the will (motive action) or to that of a simple impression (stimulation.)

"12. As all the nerves of sensation terminate ultimately in the cerebro-spinal axis, (the spinal cord and its prolongations as far as the *crura cerebri* and *corpora quadrigemina*) and all the nerves of motion arise from it, it follows that all motions must be the result of some stimulus applied to this system; and this stimulus may either be given by an impression from without, or by a mental change within (or in the brain above.) If we regard the cineritious matter of the brain as a seat of consciousness, sensation, the intellectual powers, and volition, the medullary portion of the hemispheric ganglia being merely a conductor, (a position which I do not wish to be understood as advocating,) it necessarily follows, from the positions previously taken, that the sensory and motor tracts in the brain simply convey *upwards* to the cineritious matter, the influence of the impression existing in the cerebro-spinal axis, and *downwards* the motive action resulting either immediately from sensation, or from volition."

Edinburgh Journal. July, 1837.

* The term *external* is here employed in the usual metaphysical sense, implying something distinct from *mental* action. The stimulus may originate in the corporeal organism itself.

On Unity of Function in Organized Beings. By W. B. CARPENTER, Esq.

THIS is another paper by the same author, and possesses the same ingenious and philosophical character. As it has less relation to human physiology, we must content ourselves with a mere reference to it: but its perusal will gratify all those who have been accustomed to regard physiology generally, as it relates to animated beings. The chief object of the author in this paper is to apply to *function* one of the laws propounded by Von Bar with regard to structure, namely, that, "a special function arises only out of one more general, and this by a gradual change;" to which Mr. Carpenter adds a second, namely, that "in all cases where the different functions are highly specialized, the general structure retains, more or less, the primitive community of function which originally characterized it." "The time has long gone by (says Mr. C.) when similarity in function and external form were considered sufficient for the recognition of analogies between organs; anatomists are now aware of the necessity of resting their comparison upon the elementary structure of organs, their connexions with each other, and the changes they undergo during the progress of their development. Neither of these grounds of judgment can be safely trusted to alone; whilst, combined with each other, they furnish a body of evidence which is quite irresistible."

Edinburgh Philosophical Journal. July, 1837.

PATHOLOGY, PRACTICAL MEDICINE, AND THERAPEUTICS.

An Account of Hernia Pericardii. By T. HART, A.B. &c., Dublin.

THIS is a short account of a curious pathological condition of the pericardium hitherto, we believe with Mr. Hart, unnoticed. It presented itself in an aged female subject with general anasarca, brought into the Park-street School for dissection.

"On opening the thorax, with a view to demonstrate the organs situated in this region, it was found that the pleural cavity on either side was so completely obliterated by old and extensive adhesions, as to render those parts totally unavailable for anatomical purposes. The anterior mediastinum was occupied by a membranous pyriform sac of considerable size, lying on and overlapping the pericardium, which was greatly distended, as well from the large quantity of fluid it contained, as from the hypertrophied condition of the heart, this organ being in a state of active aneurism. The sac contained fluid to the amount of three or four ounces, and was free and unattached in its whole extent, except at its upper and smaller extremity, where there existed a free communication between it and the pericardium, as proved by the following simple experiment:—By raising the sac off the pericardium, it was made to empty itself, the fluid passing into, and increasing the already distended condition of that sac; and again, on pressing on the pericardium from below upwards, the abnormal sac, in its turn, assumed its former dilated appearance. The pericardium was next laid open by a longitudinal incision, and its communication with the abnormal sac brought into view: it was situated immediately at the point of reflection of the pericardium on the aorta, in one of those pouches, designated the sinuses of Haller, and presented a regular, well defined circular orifice, freely admitting the introduction of a finger, around which the fibrous membrane of the pericardium formed a thick annulus of great strength, and then passed, considerably attenuated however, over the whole surface of the sac: the serous membrane passed into, and lined it throughout. The preparation of this very interesting case is now preserved in the Park-street Museum."

Dublin Journal, July, 1837.

On the Employment of Tartar Emetic in large Doses in Inflammation of the Mamma. By J. C. W. LEVER, Esq.

SOME time since Dr. Evory Kennedy, of Dublin, recommended this practice, and in the present communication Mr. Lever relates six cases by himself, and two by Dr. Ashwell, in which it was employed with the greatest success. The general mode of administering the tartar emetic was first to give a cathartic draught containing one grain of this salt, and then giving about half a grain in a mixture every two hours. Mr. Lever is of opinion that "the patient must be *nauseated*; and this kept up for a longer or shorter time according to the state of the indurated or inflamed glands." [In using this remedy in *pneumonia*, its effect is certainly as beneficial, if not more so, when it does not nauseate. Inflammation of the mamma is so very obstinate and painful a disease, that we are pleased to receive any accession to the ordinary modes of treating it, and shall be glad to put in practice the treatment recommended by Mr. Lever.] *Med. Gazette.* Aug. 19.

On the Efficacy of the Cold Affusion in the Treatment of Poisoning with Sulphuric Acid. By J. T. BANKS, M.D., Physician to the Louth Dispensary.

A GIRL, æt. nineteen, swallowed by mistake rather more than forty drops of hydrocyanic acid, which produced immediate convulsions and insensibility. After the convulsions, and while the patient was in a state of insensibility, "the eyes fixed and glistening, the pupils dilated and wholly insensible, the respiration slow and feeble, the pulse scarcely perceptible, with a cold clammy sweat over the surface," various stimulants, both external and internal, were employed without effect. At this time Dr. Banks directed "a stream of cold water from a large pitcher, at some distance above the head," to be poured upon it. "A minute had not elapsed before the patient began to move, and in a very short period longer she became convulsed, and writhed and moaned as if in agony." A repetition of the effusion had a similar effect, and the patient gradually rallied.—We join in the candid doubts of Dr. Banks as to whether the case would have proved fatal if no remedial means had been adopted, but think, with him, the case valuable, as proving the great power of the cold affusion "in arousing the nervous system when its energy seems almost destroyed." *Edin. Journal.* July, 1837.

On Violent Pulsations of the Aorta in the Epigastric Region, and their Treatment. By W. FAUSSETT, A.B. Dublin.

THIS paper refers to a well-known disease, or rather symptom of disease, which is often very distressing to the patient and refractory to treatment. The author does not profess to add much to what is already known of the nature and causes of it, but his communication assumes a character of some importance, from containing what he states to be "a method of treatment which has been found eminently successful in the many cases in which he has tried it." We believe Mr. Faussett is correct in attributing many cases of this sort to that fruitful source of chronic malady, abdominal plethora.

The following summary, which concludes Mr. F.'s paper, contains his views of the nature of the affection:—

"1st. That violent pulsations of the aorta in the epigastrium, constitute an affection not 'of little importance,'* and one that is attended with actual, not imaginary suffering. 2d. That this affection is not a *nervous* one in the received sense of the word, at least does not indicate a state of general nervous debility. 3d. That it is not an effect of which dyspepsia is the cause, but that these two, with many others, are conjoint effects, or links in a chain of morbid sympathies, all dependent on some common cause. 4th. That the several causes enumerated by authors, have led to confusion in estimating the true nature of the complaint, while

* So stated by Dr. Baillie.

the proximate cause, which is probably alike in all cases, has not been properly distinguished. 5th. That this proximate cause appears to be a deranged condition of the great nervous centre of the sympathetic, of its branches, or its anastomoses. 6th. That this hypothesis satisfactorily explains all the morbid phenomena of epigastric pulsations. 7th. That this hypothesis is corroborated: first, by the fact that some of the phenomena, *e. g.*, sense of faintness, sense of vital depression, extreme anxiety, prostration of strength, &c. are (in degree) like effects with what we know to follow from a direct lesion of the nervous centre, as evidenced by a blow upon the epigastrium; and secondly, by the fact that the carotid arteries form that portion of the vascular system, which, next to the aorta, is most subject to increased pulsations; at the same time that these vessels are, in some measure, circumstanced with respect to the large cervical ganglia, and their anastomoses with cerebral and spinal nerves, *as is* the aorta with respect to the plexuses in its vicinity. 8th. That the deranged condition of the great nervous centre of the sympathetic, its branches, and its anastomoses, is owing to a state of visceral congestion, or sub-acute inflammation; or is at least in some manner associated with an over-fulness of the vessels in this region. 9th. That those cases of epigastric pulsations which are caused by tumors pressing upon the course of the aorta, operate not merely by diminishing the vessel's caliber, but by irritating its coats; thus likewise producing morbid impressions upon the nervous tissues of the artery. 10th. That the state of the system in general is not what is commonly denominated '*below par*;' on the contrary, that there is rather a tendency to vascular fulness, which is proved, 1st, by a very frequent determination of blood to the head; 2d, by the vessels relieving themselves by capillary exhalation, as in the case of hydrocephalus; 3d, by the relief which general and local bloodletting, constantly afford. Lastly, that the affection is not only entirely within our control, but curable upon the simplest principles of medical science, always, however, premising, that the coats of the vessel have not undergone any particular organic change."

The following is the author's treatment.

"The plan of treatment is as follows: local bleeding by cupping and leeching, (a combination of these, leeching first and *then* cupping, answers the purpose well.) In a few cases general bloodletting is necessary, *viz.*, those in which the symptoms are severe, and local abstraction of blood has been employed in vain, or where the pulse seems to warrant the practice; or without this criterion, where there is a sense of tightness, fulness, or uneasiness in the head,—in any modification of such cases, venesection from the arm to a moderate extent, may be practised with safety, the relief afforded the patient will be striking, and the blood will often be found buffed, and even cupped. After local bleeding, counter-irritation by means of antimonial ointment, or the croton oil, rubbed over the epigastrium, or between the shoulders, may be employed with benefit. The state of the digestive organs demands particular attention, if an obstruction be suspected in the arch of the colon from an accumulation of feces there, or in any other part of the intestines, a tolerably active purgative had best be first exhibited and mild aperients afterwards. But as soon as local bleeding has been *first* practised, and the bowels moved, we should at once have recourse to the use of blue pill, combined with sedatives and James's powder, or *hippo* [Anglicè Ipecacuan.], and give it twice or thrice daily, until the mouth becomes slightly affected. The inspissated juice of cicuta, or henbane and hippo, are what I have conjoined with blue pill, and derived the greatest advantage from. If the urgency of the symptoms demand it, and it be thought desirable to expedite the effect of the mineral upon the mouth, mercurial inunction either to the inner part of the thighs, or over the abdomen, should be resorted to, for it will invariably be found, the moment the gums become tender, and seldom before this period, that all the symptoms are mitigated. A strict regimen must be also enjoined; meat, wine, and stimulants, must be forbidden, and contrary to what is imagined, and usually practised, the patient's diet should be made to consist of milk, and farinaceous vegetables; barley, arrow-root, sago, &c. In the course of a few days, (averaging at about a fortnight,) and often contemporaneously with the mouth becoming sore, it will be found that the epigastric pulsations have ceased,

that the appetite and digestive functions have improved, the patient's spirits returned, and a general renovation taken place in his state of health.

Dublin Journal. July, 1837.

Observations on the Character and Treatment of the Spotted Fever, at present existing in St. Giles's and the Neighbourhood. By JOHN WILSON, M.D. Physician to the Middlesex Hospital.

THIS paper contains the most decided and interesting illustration that we have yet met with of the good effect of Dr. Stevens's saline treatment in diseases attended with a morbid, or, as it is usually termed, dissolved state of the blood.

The following is an account of the general symptoms of this fever on the admission of the patients to the hospital:

"Countenance dusky; the worst had the livor of pneumonia; one more inclined to the purple of asthma or emphysema, without cough or expectoration. Spots more or less over all the body, especially the trunk, varying in degree and extent; some faint, like a dark marked case of measles; in others the spots were larger, more confluent, and of a darker hue, mottling the trunk and extremities in a great variety of forms and shades. Pulse generally below one hundred; stupor and drowsiness, but sensible on being roused for the most part. Urine diminished; a few had it turbid, mostly deep-coloured. No purging. Skin hot and dry; tongue dry, brown or red, often with sordes."

The following is the account of the examination of a body sixteen hours after death; and the appearances corresponded with those generally observed in fatal cases previously to the adoption of the saline treatment.

"The whole body still warm and covered with port-wine-like stains. The cavities, particularly the thorax, smoked when laid open; all the blood was quite fluid and black, staining the lining membrane of the heart and veins. The lungs were gorged with blood, and in some parts it was extravasated into the tissue in lumps, which sunk in water. A large quantity of clear fluid in both lateral ventricles of the brain. Mucous membrane of the intestines healthy, as well as all other parts of the body."

In consequence of the ill success attending his previous method of treating this fever, Dr. Wilson very properly resolved to change it; and the following extracts give an account of the new plan and its results.

"Finding that the blood in all the cases was fluid, and of a black venous colour, and knowing that we could change the dark venous to a bright arterial coloured blood, we determined, should we have any more similar cases, to give Dr. Stevens's saline treatment a fair trial, but at the same time not to abandon the use of the warm bath, which we are in the habit of giving to all fever, and every other case, on admission, excepting some head or heart affections."

From the 4th of May till the 16th of June, nineteen cases of the fever were admitted, from whom the description of the symptoms given above was taken.

"Now all the nineteen cases, to which these symptoms apply in a general way, were on admission put into a warm bath, and well washed with soap, had their heads shaved, and to which cold lotion was occasionally applied; afterwards all had Dr. Stevens's powder which he gave in cholera, viz. carbonate of soda, 3ss.; muriate of soda, ʒj.; chlorate of potass, gr. vj. This was repeated every six hours in a cupful of water, or more if they liked. The bath and powder applied to one and all. Some, when they became insensible or delirious, and refused the powders on account of their taste, had in their place, by way of common drink, a 3j. of the chlorate of potass in a quart of water every twenty-four hours; and these salines were continued till convalescence." . . . "The powders did not irritate the stomach, and acted sufficiently on the bowels, promoting, at the same time, the secretions of the skin and kidneys; and the spots on the body, from a livid, became of a brighter hue, some of a bright red. The urine for the first days was acid, clear, and dark coloured; in some afterwards it became alkaline, in others neutral; in all it increased in quantity, and became more pale, but always clear, and continued so during the convalescence; after the powders had been stopped, it again became

acid. The bowels in almost all were regular." . . . "Evidences of recovery were a bright eye and clear countenance; increase of urine; moist skin; bowels acting regularly every twenty-four hours; sordes disappearing. These changes were generally preceded by sleep of two or three days and nights, after which sleep recovery became secure. The port-wine stains and rubeoloid spots changed from a dusky to a brighter red colour, and then gradually, but slowly, disappeared."

Two of the nineteen cases treated with the saline medicines died, and it is remarkable that the blood found in these, on dissection, was of a *bright red colour*, instead of being black, as in those in which the saline treatment was not employed.

Med. Gazette. July 1, 1837.

Report of St. John's Fever and Lock Hospitals, Limerick.

By W. J. GEARY, M.D.

THIS is a valuable paper, and affords some additional materials to the statistics of fever, the more worthy the attention of the medical enquirer from the length of time and the great number of cases comprehended in the Report. We have only room for the tabular summary with which the paper concludes.

Year.	Admitted	Cured.	Died.	Average Mortality.
From 1794 to 1819	10,954	10,336	618	1 in 17½.
From 1820 to 1836	22,682	21,338	1,344	1 in 16.
Total	33,636	31,674	1,962	1 in 17.

Dublin Journal. July, 1837.

Cure of Gout by Colchicum applied externally.

By T. W. WANSBROUGH, Esq., Fulham.

[THE following facts deserve to be recorded, and the practice further tested: we fear future trials will prove the result in this case to have arisen from individual idiosyncrasy.]

A gentleman who had previously had two attacks of gout, met with an accident which dislocated and fractured the fibula.

"Thirty-six hours after the accident, gout appeared in the great toe of the wounded foot, and increased with such violence, that, from intense suffering, at the end of six hours, the patient became exhausted and slightly delirious. Every application that could be thought of was used without affording any relief; on the contrary, each appeared to increase the pain; even colchicum, taken internally, totally failed. As a dernier resort, I added ʒij. of tinct. *sem. colch.* to a ʒiv. spirit lotion last used. The effect was magical; immediate relief was felt, and, after two or three applications, the patient fell asleep, slept soundly for four hours, and awoke free from pain, nor has he had a return of gout since, save some compunctious twitchings, once or twice, which were immediately removed by a few drops of the tinct. colch. applied to the part, through the stocking."

An anonymous correspondent, in the next Number of the same Journal, states a similar result to attend the local use of morphia. "The treatment is this:—Bathe the part in hot water for one minute, and then apply lint, spread with simple cerate, on which is spread about three grains of the acetate of morphia. The change which speedily takes place is surprising. The patient, from extreme agony, at once passes to a state of comfort."

Lancet. July 29 and Aug. 5, 1837.

On the Existence of a "Cerebral Murmur" in Chronic Affections of the Brain.

By J. R. SMYTH, M.D.

DR. SMYTH here details three cases of chronic hydrocephalus in which this phenomenon was detected, the patients being one year, one and a half, and seven years respectively. In the oldest child, the sutures on the upper part of the head were all un-united. The following is Dr. S.'s description of the sounds:—

"On applying the ear to any of these situations, and also over the parietal bones, a brief, rather soft, rushing sound, synchronous with the pulse, is distinctly audible. Over the anterior fontanel and parietal bones it is heard the loudest, and it gradually becomes fainter as the examination recedes over the sagittal suture, posterior fontanel, and occipital bone. To be somewhat more particular—in the earliest description of this new auscultic phenomenon, it is an abrupt, brief, rushing, arrested sound, in tone something between a *bruit de soufflet* and a *bruit de rape*; not soft enough for the former, nor hard enough for the latter. In its character of intensity it varies of course with the energy of the action of the heart and pulse. When the circulation is excited and vigorous, and the heart, unembarrassed by palpitation, beats steadily and strongly, the sound is most clearly audible."

[This sound, we presume, is a mere *bruit de soufflet*, having its seat in the arteries within the skull, analogous to that so frequently produced by the subclavian arteries. It may possibly be made available in the diagnosis of cerebral diseases; but we cannot at all join with Dr. Smyth in expecting that any "auscultatory signs will enable us to mark the progress of the effusion into the ventricles of the brain, with the same degree of accuracy as in hydrothorax and empyema." The circumstances of the two cases are in no respect analogous. This "cerebral murmur" was some years since noticed by an American physician.]

Med. Gazette. Aug. 19, 1837.

SURGERY.

An Inquiry into the Possibility of Transplanting the Cornea, with a view of relieving blindness (hitherto deemed incurable,) caused by several Diseases of that Structure. By S. L. L. BIGGER, M.B. &c.

THE title of this paper will startle those who are not familiar with the feats performed by modern ophthalmologists for the relief of imperfections of the organ of vision. The paper itself, however, may probably be referred to hereafter, in a more advanced stage of ocular surgery, as a record of an early attempt at effecting a bold design, eventually rendered successful by the improvements of time. The operation contemplated by Dr. Bigger, that of "excising the morbid cornea, and replacing it by a healthy structure, taken from some of the inferior animals," is not an original one, having been previously attempted by several surgeons in Germany, on the inferior animals, and with partial success. Dr. Bigger has followed up the practice to a much greater extent, and, from an improved method, with more success than his predecessors. Still the results of his experiments prove that much is yet wanting to render the operation one that can be relied on with much confidence. We think, however, that Dr. B. deserves the greatest credit for his bold and ingenious attempts to remedy one of the most lamentable of ailments. No attempt has yet been made to extend the operation to the human eye. The following extracts from the Report of Dr. Bigger's paper contain (1,) an account of the manner of performing this curious operation; (2,) the results of the operator's last experiments; and (3,) Dr. B.'s conjectures respecting the applicability of the operation to the human eye.

I. "Having fixed, with a ligature, the upper eyelid of the animal from which the cornea is to be taken, he introduces Beer's cataract knife (holding it horizontally, and at first directing it a little backwards, so as to ensure its passing through all the layers of the cornea,) with its edge turned upwards, into that part of the cornea situated about a line or more from its most inferior junction with the sclerotic, and about the same distance external to the mesial line of the eye. He then pushes on the knife for the space of one or two lines, inclining the handle, so that the point of the knife may be brought forward, and caused to pierce the cornea again, at a distance, as small as possible from the point of entrance. The knife should now be pushed on, when it will make as large a section as may be required, which being turned down, is to be cut off with a pair of scissors. The eyelids are then to be closed, to prevent the escape of the crystalline lens and vitreous humour. The excised cornea should be placed on a slip of cork, and the curved needles, carrying very fine ligatures, (two, three, or four in number,) should be passed through the

cornea and the piece of cork. The latter, which has been chiefly used as a support to enable the operator to pass the needles through the tough layers of the cornea, should then be broken off, and the cut surfaces of the cornea should be kept moistened with some of the secretion from the eye. The surgeon then proceeds to perform the same operation on the eye to which the cornea is intended to be transplanted. Having done this, and closed the lids for a few moments, until the spasmodic action of the muscles of the eye diminishes, the operator proceeds to adapt the cornea to its new situation, and for this purpose inserts the point of his needle carefully between the margin of the now prolapsed iris and the remains of the cornea, and pressing externally with the nail of the other forefinger against the point of the needle, so as to make it pass through the cornea without dragging or injuring the eye, draws out the needle. To accomplish the latter object, Dr. Bigger was often obliged to use a small forceps, and in this case, the thumb and finger nails of the other hand must be pressed closely and firmly against the cornea on either side of the needle, to obviate any injurious disturbance or dragging of the eye. The ligatures should then be carefully tied, and the ends cut off. Dr. Bigger has found two ligatures to answer the purpose quite as well as four. Finally, the operator clears away any lymph or blood which may have collected on the eye, and concludes the operation by smearing the eyelids with a little spermaceti ointment."

2. "On his return to Dublin, Dr. Bigger commenced his experiments anew; of these, he has now performed eighteen. The subjects of the first and last, two rabbits, were presented before an evening meeting of the King and Queen's College of Physicians, on the 18th of May last. They were examined with great interest by the members and visitors present, and the degree of vision which one of them evidently possessed, reflects the highest credit on the ingenuity, patience, and manual dexterity of the scientific operator. The results of these eighteen experiments were: in ten, the iris was injured; in eleven, the crystalline lens escaped; in seventeen, union took place between the implanted cornea and the adjacent surfaces in forty-eight hours, so as to admit of the withdrawal of the ligatures, which are always a great source of irritation; in four, three ligatures were employed; in fourteen, only two, and with equally favorable results; in twelve, adhesion of the iris to some part of the cicatrix ensued; in one, sloughing of the cornea and destruction of the eye took place, an event which arose from the cornea being kept for half an hour without applying it, with the view of ascertaining how long it would be likely to retain a sufficient degree of vitality to enable it to unite. Of the whole eighteen experimented on, sixteen recovered imperfect vision. The difficulty of performing the experiment in such a way as to afford a chance of preserving the transparency of the implanted cornea, was a source of much disappointment to Dr. Bigger, and for a long period he could not succeed in devising any means for this purpose, until after his eighth experiment at home, when he discovered that much benefit might be derived from the local application of bichloride of mercury. A weak solution of this salt, gradually increased to the extent of three grains to the ounce of distilled water, and dropped into the eye three or four times a day, after the cornea had become adherent, was found by him to exercise an almost specific action in diminishing the opacity of the implanted cornea."

3. "With reference to the applicability of the operation to the human species, Dr. Bigger observed, that he thought that in man the chances of success would be greater, at least so far as steadiness during the operation, avoidance of injury, and other obvious circumstances might contribute to that desirable end. With respect to the animal from which the cornea would be taken in the case of the human subject, Dr. Bigger has not yet decided, and invites the attention of comparative anatomists to this point of the investigation. The animal whose cornea he has found to make the nearest approach to that of man is the pig; it is, however, much thicker and coarser in its texture. In a spirit of just and humane feeling, he deprecates the removal of the cornea from the human eye, even when permitted for gain by the possessor; but thinks that a person afflicted with incurable amaurosis might be prevailed on to part with his pellucid cornea, which might be replaced by one taken from some of the inferior animals. He thinks, however, that the operation should

not be sanctioned under any circumstances, when the patient enjoys even a tolerable degree of vision with the other eye, at least until our knowledge has been increased by further experiments and observations. He is of opinion that cases of blindness caused by small-pox, ulcers on the cornea, and ophthalmia not affecting the deeper structures of the eye, would be the most favorable for operation."

Dublin Journal. July, 1837.

Observations on the Advantage of Healing by the first intention the Wound in the Lateral Operation for Lithotomy. By JOHN CHRICHTON, Esq., Surgeon, Dundee.

THE object of this communication is expressed in its title; and it contains a report of many interesting facts confirming the views of its highly respectable and skilful author. In a former communication to the same Journal, in the year 1828, Mr. Chrichton stated, that he "had already witnessed the wound healed by the first intention in five instances, the urine passing from the urethra from the commencement, and continuing to do so, whereby the cases were remarkably expedited, and much annoyance from the dribbling of the urine by the wound avoided." Since that time about forty cases have been operated on by Mr. C., and in thirteen of these "the wound adhered at once, healing by the first intention. In the greater number, however, the chylipoietic viscera being unsound, and the habit much debilitated, the attempt to heal the wound by the first intention was not considered advisable." Mr. C. concludes his paper with some severe, and we must be permitted to say, rather partial strictures on the operation of lithotomy. We recommend to his attention the very admirable and most candid essay of Mr. Key on this subject, noticed in our present Number.

Edinburgh Journal. July, 1837.

Case of Club Foot successfully treated by the Division of the Tendo Achillis.
By G. RAY, M.R.C.S.

THIS is a very interesting and well-detailed case, and strikingly illustrative of the benefit resulting from the plan of dividing the tendon in such cases. The patient was Mr. Ray's own son, aged fourteen years, and the deformity was congenital.

"On the 1st of May, Dr. Little divided the tendo-achillis, about an inch and a half above the malleolus, by introducing a very narrow, slightly-curved, bistoury between the tendon and the deeper-seated muscles and tibial vessels, directing the edge of the knife against the front of the tendon, dividing it from within outwards, leaving the skin covering the tendon untouched. The section was accomplished most skilfully, and the *minute* puncture in the skin was covered with a strip of adhesive plaster, and a loose bandage was applied round the foot and leg. Any separation of the divided ends of the tendon was prevented by placing the foot in its deformed position upon a stiff pasteboard splint, applied along the outer side, and by adjusting the limb, with the knee bent, upon a pillow; on the second day the report was that he had had no pain or tenderness, and would not have known that anything had been done to the limb but for occasional contractions of the muscles of the calf, they having lost their fixed point. 3d day. The puncture (which is inconceivably small) was found agglutinated, although not firmly cicatrized; the application of the extension foot-board was consequently deferred another day or two. The ends of the divided tendon cannot be felt, owing to the effusion of coagulable lymph, which is necessary for its perfect reunion. 4th day. The puncture firmly cicatrized, and Stromeyer's foot-board applied. The boy is perfectly well. The handling of the foot preparatory to the application of the apparatus, and the attempt to draw the heel down, produce no pain. 10th day. The stretching of the lymph effused between the ends of the tendo-achillis, the elongation of the contracted ligaments of the anklejoint, and the consequent bending of the foot upon the leg, have been gradually continued, so that the foot at present is nearly at a

right angle with the leg, and all this has been effected without pain. He has been able for the last two or three days to walk about the room, with the foot-board, which diminishes the irksomeness of wearing it, and assists much in bringing down the heel to the ground.

"14th day. The foot is completely at a right angle with the leg."

At the end of six weeks the boy returned home, and is stated to be steadily improving; the lameness being very slight and becoming less daily.

Lancet. July 15, 1837.

On the Treatment of Gonorrhœa in the Female by solid Nitras Argenti.

By JOSEPH BELL, Esq.

WE notice this communication for the purpose of obviating the effect of the statement made by Dr. Smith, and recorded in our last Number, p. 259. The following extract from Mr. Bell's paper sufficiently disproves the most important of Mr. Smith's charges:

"Mr. Smith deems the practice in question 'cruel.' In support of this surmise, he states that the 'Lock Hospital is always full when Dr. Cumin has charge of it; but, on the other hand, does not average above four-fifths full when under the charge of Dr. Hannay.'"

"The following statement, made from the journal of the Lock Hospital, will, however, set this matter in its true light:

Number of Patients in the Hospital during Dr. Cumin's six months' attendance, commencing 1st January, 1836, ending 1st July, 1836.

Number of patients remaining in the hospital on 1st January	24
Number of ditto admitted from 1st of January to 1st of July	135

Total number of ditto under Dr. C.'s charge	159
Of these there remained in the hospital on 1st July	25

Number of patients dismissed under Dr. C.	134
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Number of Patients in the Hospital during Dr. Hannay's six months' attendance, commencing 1st July, 1836, and ending 1st January, 1837.

Number of patients remaining in the hospital on 1st July	25
Number of ditto admitted from 1st July, 1836, to 1st January, 1837	130

Total number of ditto under Dr. H.'s charge	155
Of these there remained in the hospital on 1st January, 1837	15

Number of patients dismissed during Dr. H.'s attendance	143
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Medical Gazette. June 24, 1837.

PHARMACY.

New Preparation of Opium. By JOSEPH HOULTON, Esq.

"THE preparation, which I label *Liquor Opii*, is made as follows:—Take two ounces and a half of the best Turkey opium; thirty-two fluid ounces of Beaufoy's acid, the strength of pickling vinegar: macerate with a gentle heat for six days, frequently shaking the vessel; then filter, and evaporate the fluid to the consistence of the extracts of the Pharmacopœia, finishing the evaporation by the spontaneous method. (This I employ under the name of *Extractum Opii Aceticum*.)

"Take the above extract; alcohol, five fluid ounces; distilled water, thirty-five fluid ounces. Macerate for eight days, and filter.

"This liquor opii will be about the strength of tinctura opii in sedative property; but the strength may be varied at the will of the apothecary. I prefer it of the proportions I have stated.

"From my own observations, which have been extensive, I feel assured that it is in no respect inferior to the *Liquor opii sedativus* of Batlle." *Med. Gaz.* Aug. 12

PART FIFTH.

Medical Intelligence.

ON THE STATE OF MEDICINE IN NORWAY.

By **FREDERICK HOLST, M.D.**, Professor of Medicine at the Royal Frederick's University in Christiania.*

THE state of the sciences in Norway is but little known out of Scandinavia, the native works being but few, and, generally speaking, inaccessible to the majority of the cultivated nations of Europe, on account of the language in which they are composed. Moreover, we are seldom visited by scientific travellers; and the few that come among us are not only deficient in the requisite knowledge of our language, without which it is impossible for them to derive much advantage for their visit, but also generally remain for such a short period that they depart with very superficial, and not unfrequently even incorrect, notions of the country, its inhabitants, and its institutions. These general observations are peculiarly applicable to medical science. It is consequently no easy task to prepare a Report on the State of Medicine in Norway, which shall at the same time be sufficiently concise to be suited for a Journal, and sufficiently full to give foreign readers a tolerably clear idea of the subject.

THE UNIVERSITY.

The want of a university in Norway had long been felt, when his Majesty King Frederick VI., by his decree of the 2d September, 1811, founded that in Christiania, by the name of *Universitas Regia Fredericiana*. After the necessary preparations, this institution was opened in the summer of 1813: in the ensuing year, Norway was separated from Denmark, and the illustrious founder was thereby prevented from fully completing its organization. Its regulations were at first the same as those of the university of Copenhagen, except so far as local circumstances made alterations necessary; but, on the 28th of June, 1824, it received its own charter, which, along

* It may be necessary to observe that, as the language used in Norway in writing, and by all educated persons in speaking, is, though called Norwegian (*Norsk*), identically the same as that written and spoken in Denmark,—i. e. as the Danish,—we have, to prevent confusion, always used the latter appellation, as more generally known. The language spoken by the peasantry of Norway differs from the last by the retention of many words of the ancient Scandinavian, which are no longer preserved in the Danish or else have undergone greater modifications: as may be supposed, the dialect spoken in the mountain districts approaches the nearest to the old Scandinavian; from which latter the present Icelandic differs but little, the remote situation of the island and other causes having preserved the language nearly in the same state as when the original colonists brought it with them from Scandinavia. We also wish it to be understood that, as there is no single word in English which answers to the Danish *Læge*, or medical practitioner, it has been sometimes rendered physician and sometimes surgeon: in Norway, as will be seen by the Report, there is no distinction of the two classes, as amongst us; the functions of both being always understood to be combined. In the titles of persons filling official situations, however, a distinction is sometimes made by the use of the terms *physicus* and *chirurg* in composition, as in the words *Stadphysicus*, *general-chirurg*; but the holders of these situations are still equally styled *Læger*. The vernacular term for surgeon is *Saarlæge* or *Vundlæge*, just as the Germans use *Wundarzt*,—i. e. wound-physician or wound-doctor. *Læge* corresponds to the Anglo-Saxon *leo* or *læce*, whence the antiquated English *leech*.—TRANSLATOR.

with sundry special regulations, treats of its constitution, privileges, and organization; of its academic prælections, festival days and vacations, examinations, discipline, exhibitions, and degrees; of the use of the library and other scientific collections; and of its income and expenditure.

The officers of the university are, a chancellor, a vice-chancellor, nineteen professors, six lecturers, and one tutor, (divided into the four faculties of theology, jurisprudence, medicine, and philosophy,) a librarian, a sub-librarian, a treasurer, a secretary, and a curator of the botanic garden, who are all named by the king. It is represented and governed by the Academic College, which consists of the vice-chancellor, a dean of each faculty, and two assessors of the faculty of philosophy; seven in all. The vice-chancellor is, by the charter, a permanent member of the College; the rest sit and vote only for the year, and are then replaced by others.

Matters which the members of the university are not empowered to decide upon themselves are referred to the chancellor, who reports through the proper office whatever is to be laid before the king.

Each professor is bound to deliver the public lectures required by the nature of his office, without any fees from his auditors; but he has likewise liberty to give private lectures in any department whatever for a stipulated honorarium: these private lectures, however, have as yet been delivered only by a few, and that not constantly. The student may consequently pass through his whole academic course without having to pay a single fee. Examinations, graduations, and diplomas are likewise free of charge. The year is divided into half-years; the first lasting from the 1st of January to the 30th of June, and the second from the 1st of July to the 31st of December. The lectures are held during the whole year, except in the winter and summer vacations, (the former being from the 16th of December to the 15th of January, and the latter from the 16th of June to the 31st of July,) and on holidays and the university festival days; viz. the anniversary of the reformation, the king's birthday, and commencements, all of which are solemnized by a Latin oration by one of the professors; they are also discontinued during the holding of examinations, which, on account of the annually increasing number of the students, occupy a considerable time. Thus, in the faculty of medicine, six or seven months of each year are taken up with examinations and the vacations, and there are consequently but five or six left for lectures.

Whoever wishes to be admitted as a *civis academicus*, or student of the university, must undergo an *Examen artium*, at which he has to display his proficiency in Danish, Latin, Greek, French, German, divinity, history, geography, geometry, and arithmetic; and, if a divinity student, in Hebrew also. When he has passed this examination, he is enrolled as a *civis academicus*, engages to keep the academic laws, and chooses one of the professors for a tutor, (*privat præceptor*,) who is to be his especial adviser and guide both in literary and scientific and other matters, and to keep watch over his conduct while at the university. The student has next to pass an *Examen philologico-philosophicum*, at which he is examined in Greek and Roman literature, history, stereometry, trigonometry, the elementary principles of algebra, physics, astronomy, natural history, logic, psychology, metaphysics, and ethics. These two examinations are held by the faculty of philosophy, and are the same for all the students, be their intended professional course what it may.

MEDICAL INSTRUCTION. The student who, after standing the above-mentioned examinations, intends to devote himself to medicine, now passes over to the faculty of that science, whose dean gives him a synopsis, (*Studieplan*,) which indicates the order he has to follow in studying its various departments, and whose five professors, in conjunction with those of natural history and chemistry, from the faculty of philosophy, deliver lectures on its several branches, both theoretical and practical. The order prescribed in the medical *Studieplan* is as follows:—The student is first to apply himself to natural history and chemistry, as being the true foundation of the healing art. He is next to learn anatomy, both from lectures and by dissecting, and is expected at the same time to attend to comparative anatomy, for which he has been the more fitted by his previous studies in zoology. Physiology may also be studied at this period. The student is especially recommended to commence early

to attend an hospital, for the purpose of satisfying himself whether he has really a taste for the medical profession. The fundamental branches of knowledge being thus acquired, the student, without laying them aside, is now to proceed to their application in the departments of pharmacology (general and special), pathology and therapeutics (both medical and surgical), and midwifery; and is to conclude with medical jurisprudence, and the literary history of medicine, as well ancient as modern. The plan, of which this is the outline, was drawn up, in 1826, by Professors Thulstrup, Skjelderup, Sörenssen, and Holst.

Instruction in the practice of medicine and surgery was formerly given in the City Infirmary, but, since the autumn of 1826, it has been given in the National Hospital, which was then opened. This institution has been founded and supported almost entirely at the public expense, and, when completed, will be capable of accommodating two hundred ordinary patients, seventy-five syphilitic or affected with cutaneous diseases, and twenty-five lying-in women; consequently, three hundred patients in all. It receives about one thousand annually. The university professors of the practice of medicine and of surgery are its head medical officers, and give daily clinical instruction there. There are, besides, three physicians extraordinary, who have to pass an examination for their office; four candidates, who may at the same time be students; and an indefinite number of volunteers.

With these aids, the student prepares himself for his medical examination, which is conducted as follows:—1st. He is required to perform an anatomical dissection of a given portion of the human subject. 2d. A medical question is propounded, to which he has to give a written answer.* 3. He is given a medical and a surgical case to examine in the National Hospital, and is required to give in writing their history, diagnosis, prognosis, and treatment. 4. He undergoes an oral examination, which lasts three days, and occupies altogether about nine or ten hours, during which he is examined in natural history, chemistry, anatomy, physiology, pharmacology, toxicology, medical and surgical pathology and therapeutics, midwifery, and forensic medicine. These examinations are held twice a year, and seven days are devoted to each candidate. The first three trials are conducted solely by the medical faculty; the fourth by the same in conjunction with the professors of natural history and chemistry from the faculty of philosophy. At the completion of the examinations, the candidate receives, according to his deserts, as determined by certain rules, one of the following titles: *Laudabilis*, *Haud illaudabilis*, *Non contemnendus*. He then gets a testimonium as *Candidatus Medicinæ*, and as such is entitled both to practise and to become a candidate for public medical situations.

As Norway, after its separation from Denmark, wanted candidates to fill the many vacant medical and judicial situations, and there was no chance of there being soon a sufficient number of regularly matriculated students to supply the deficiency, it was deemed advisable to facilitate the access to the juridical and medical qualificatory examination. Accordingly, by a law of the 6th of June, 1816, a so-called *preliminary examination* was authorized, which was limited to Danish, a little Latin, arithmetic, history, geography, and divinity. Any one who passes this may, without farther trial, prepare himself at the university, and undergo the medical qualificatory examination. This preliminary examination is therefore a substitute, to those who avail themselves of it, for both the *Examen artium* and the *Examen philologico-philosophicum* of the regular *Civis academicus*; but it must be evident to any one, on comparison, that a Preliminarist cannot be nearly so well prepared to begin his medical studies as a *Candidatus philosophiæ*; i. e. one who has undergone the two last-mentioned examinations. Accordingly, the faculty of medicine, in a report of the 23d of August, 1832, represented to his majesty's government in Norway, that the acquirements necessary for the preliminary examination could not be considered sufficient to enable the medical student to acquire a sound knowledge of his profession;

* The following were the questions proposed in the present year: at the spring examination, "Explicare et dejudicare præcipuas de medicaminum actione theorias;" at the autumn, "Quibus signis tumor scroti qui hydrocele tunicæ vaginalis testiculi dicitur, ab aliis scroti tumoribus dignoscitur?"

that the number of regularly educated students was then, and was likely to continue, sufficiently great to supply the kingdom with the requisite number of qualified practitioners; and that, therefore, the state of affairs which had required the law of the 6th of June, 1816, had nearly or altogether ceased to exist. In conformity with this report, his majesty, in the year 1833, had a proposition laid before the *Odelsthing*,* that the law of the 6th June, 1816, should be repealed, so that no one should thenceforth be permitted to study medicine at the university without having passed the *Examen artium* and *Examen philologico-philosophicum*. But this proposal, after long and warm debates, was rejected by a considerable majority, although the measure had been recommended by all the competent authorities that had considered and reported upon it.

Accordingly, there are still two kinds of medical students at the university,—*Civis academici*, or those that have been matriculated, and *Preliminarists*, or those who have passed only the examination whence they take their name. The medical examination of the latter embraces the same subjects and is conducted in the same manner as that of the former, with the exception that, both in writing and speaking, the language used is Danish, and not Latin, and that the titles are as follows: *First rate; second rate; third rate*. Whoever passes this examination receives a *testimonium* as *Examinatus medicinæ*, and is entitled to practise medicine, but not to obtain medical situations for which a higher grade of education is required; such as professorships and tutorships in the university, and the posts of surgeon or physician general in the army.

The medical examination, as conducted at the university of Christiania, justly deserves the name of *Examen rigorosum*. From May, 1817, when it was first held, to the present date, there have passed fifty-four who had matriculated, (twenty-five with *Laudabilis*, twenty-seven with *Haud illaudabilis*, and two with *Non contemnendus*), and sixty-nine Preliminarists, (ten with first rate, fifty-three with second rate, and six with third rate.) In general it requires five years' preparation, a very few have passed it after four years, and the majority require more than five.

As to degrees, there are two in each faculty, namely, that of licentiate and that of doctor. The *Candidatus medicinæ*, who wishes to take these degrees, must, in the first place, have passed both the philologico-philosophical and the medical examination with the character of *Laudabilis*. He has next to write a thesis, in Latin, on some medical subject of his own selection, and, on its being accepted by the faculty, he has to hold a *learned colloquium*, in the presence of the Academic College, with the appropriate professors in the faculty of philosophy, on Greek and Latin literature, and on history and philosophy. This examination also being found satisfactory, the Academic College requests permission of the king, as well for the candidate to defend his thesis publicly, as for the university to confer on him the degree of Licentiate, in case his defence shall be considered deserving of it. The royal permission being obtained, the candidate publicly defends his thesis in the theatre of the university, in presence of the faculty, and, on their approval of the manner in which he has performed this exercise, the degree of licentiate is conferred on him.

If he wishes further to obtain the degree of doctor, he must, in presence of the faculty and the Academic College, deliver three public prælections on subjects of his own choosing, (previously, however, announcing them to the Academic College,) and also compose an inaugural dissertation in Latin on some medical subject, likewise of his own selection. The dissertation being accepted by the faculty, the candidate delivers the prælections, and afterwards publicly defends his dissertation, (both acts by special royal permission;) and, these trials also being satisfactorily passed, he is publicly proclaimed *Doctor medicinæ*, and presented with a diploma as such. These exercises, as hitherto performed, have occupied from six to eleven hours. The gra-

* In Norway, laws are passed by the king and the *Storthing*, or parliament, in conjunction. The *Storthing* consists of two chambers, the *Odelsthing* and the *Lagthing*: every proposed law is laid before the former, and, if approved of, sent up to the latter; if both agree, the resolution is reported to the king, on whose sanction it becomes a law.

duation is generally performed, on the part of the university, by the dean of the faculty; but any other of its members the candidate may wish is competent to act. The ancient ceremonies of the open and shut book, the cap, and the ring, are still used; but the kiss and the oath are omitted.

Every one who has obtained a doctor's degree in the university of Christiania is entitled to hold lectures there; but, as this is the only privilege it confers,—as academic degrees are not necessary to enable physicians to hold office,—as those who have passed their medical examination usually get some public or private employment out of the city, and but few have an opportunity of continuing at the university for several years after that period, there have been but three such degrees taken during the twenty-three and a half years that have elapsed since the opening of the university; namely, one in 1817, and two in 1830. In the other faculties there have been no exercises for doctor's degree whatever performed.

Dispensations from the regulations above described may occasionally be obtained: for instance, foreigners may be matriculated without undergoing the *Examen artium*, on proving their matriculation at some other university, and producing a proper *testimonium vitæ*. Likewise, persons of acknowledged learning and literary merits, who have graduated at another university, or have acquired a high character by their writings, may be exempted from one or more of the above trials, and yet receive degrees.

The number of students is constantly increasing in all the faculties. At the close of last year they amounted to 724; and, with the addition of those matriculated in the present year, the entire number of students now at the university amounts to about 800; a much greater than is required to supply the kingdom with officers. The medical students have become more numerous in proportion than any other: there were forty in 1827, and there are now fully 120.

The university possesses the following establishments and collections:

1. A Library, founded by donations from King Frederick VI. and various private individuals, and, since that, yearly augmented by purchases; so that it now contains about 120,000 volumes. Between eighteen and nineteen thousand volumes are lent out in the year.
2. The Botanic Garden, established at Toien, an estate situated about an English mile from the city, and presented by King Frederick VI. It contains hothouses, a residence for the curator, a lecture-room, upwards of 6000 plants, and a considerable herbarium of dried specimens.
3. A Museum of Natural History, containing several thousand stuffed animals and minerals.
4. A collection of physical and chemical instruments.
5. An Observatory, and a collection of astronomical instruments.
6. A collection of Coins, which, at the end of the year 1835, contained 14,596 specimens.
7. A collection of Records, to the amount of 6,200.
8. A collection of Models, 168 in number.
9. A collection of Northern Antiquities, 712 in number.
10. An Anatomical Museum, the groundwork of which was laid by a donation of Professor Skjelderup's, and which contains 966 specimens.
11. A collection of surgical and obstetrical instruments, bandages, and machines; 548 in all.
12. A pharmacological collection of 648 specimens.

N.B. The amounts mentioned in the six last numbers are those ascertained at the end of the year 1835.

The library is open two hours for the first five week-days in each week; the other collections on particular days every week.

The disbursements of the university amount to about 50,000 specie-dollars, (*Spd.*) or, at the present course of exchange, 10,000*l.* sterling, yearly. The particulars of the expenditure are as follow:

Salaries and wages to the officers and assistants, about	37,000 <i>Spd.</i>
Stipends, pensions, and exhibitions	1,700

The scientific collections	5,500 <i>Spd.</i>
The botanic garden	1,000
Tour through the country, to study its natural history	400
Expenses of the establishment	4,400

Its income consists of the interest of its funds, tithes, rents, profits on the sale of calendars, registry fees from the students, and one-third of the revenues of the board of education; altogether amounting to about 17,000 *Spd.*; together with a yearly contribution from the public purse of from 30,000 to 33,000 *Spd.*

With respect to their salaries, the professors are divided into four classes, according to their standing; the corresponding salaries being 1,050, 1,200, 1,350, and 1,800 *Spd.* yearly. The lecturers have 750 *Spd.*

The library receives an annual grant of	3,000 <i>Spd.</i>
The anatomical museum gets at present,	470
The collection of surgical instruments,	180

and so forth.

The following professors constitute the present *Faculty of Medicine*:

1. Dr. Michael Skjelderup, Anatomy, Physiology, Forensic Medicine.
2. Dr. N. B. Sørensen, Medical Pathology, Therapeutics, and Clinique.
3. Dr. M. A. Thulstrup, Surgical Pathology and Therapeutics, and Midwifery.
4. Dr. Frederick Holst, Pharmacology, Toxicology, *Politu Medica*.
5. Dr. Christian Heiberg, Anatomy, Surgery, Clinical Surgery.

The following professors belong to the *Faculty of Philosophy*, but are attended by medical students:

1. J. Rathke, Natural History.
2. J. Keyser, Physics, Chemistry.
3. J. Esmark, Mineralogy.
4. B. M. Keilhau, Mineralogy.
5. M. N. Blytt, Botany, (lecturer.)

APOTHECARIES.

When any one wishes to devote himself to the study of pharmacy, with a view of becoming qualified to apply for a royal licence to keep an apothecary's shop in Norway, he serves as apprentice for a certain number of years with a licensed apothecary, and, on the expiration of that period, after undergoing an examination by the physician of the town or district, becomes an assistant. He must then, according to a royal ordinance of the 4th December, 1672, pass the pharmaceutical examination, which, as long as Norway was united with Denmark, was held at Copenhagen for both nations in common, but, since their separation, takes place in Christiania. This examination used to be merely oral; but now, by a law of the 2d June, 1836, written and practical exercises are also required. The candidate is first required to deliver in a written dissertation on a proposed pharmaceutical subject; he is then orally examined in natural history, chemistry, pharmacognosis, the reading of prescriptions, pharmacy, the estimate of the commercial value and the qualities of drugs, and the valuation of prescriptions; lastly, he has to analyze two pharmaceutico-chemical substances, and to make a medical preparation, giving in, at the same time, a written account of the process he employs. The examination is held twice yearly by a board, consisting of the university professors of natural history, chemistry, and pharmacy, together with one of the apothecaries of Christiania. From 1816, when it began to be held in Norway, up to the present time, there have been thirty-four candidates examined.

An important step towards the more successful and better-grounded study of pharmacy in Norway has certainly been made by the regulation of the 2d of June, 1836, just mentioned; but it still remains to provide that no one shall be taken as apprentice without being possessed of a sufficient general education; and it is to be hoped that this defect will be remedied by the forth-coming medical regulations.

MIDWIVES.

As long as Norway was united with Denmark, the females who wished to become midwives had to go to Copenhagen, to receive the necessary instruction at the obstetric school instituted there for the purpose, and to pass the requisite examination, without which they could not receive their appointment as midwives. The separation of the kingdoms rendered necessary the erection of a similar school in Norway, in which lectures on the art were commenced in 1815, while, in 1818, an institution was opened for lying-in women, capable of accommodating fourteen at a time, and destined for the instruction of medical students and midwives in the management of females during and after parturition, and of new-born infants; into which from 100 to 150 women are received annually. The master of the school, who is at the same time chief physician to the institution, gives the requisite instruction: this place has been heretofore filled by the university professor of obstetrics. The course lasts a year, and examinations are held yearly by the master, in conjunction with the members of the faculty of medicine. No fees whatever are required from the students, as the Storting grants from the public purse a sum sufficient to defray the requisite expenses, (of late years, 1,650 *Spd.* yearly :) many of the pupils are sent at the expense of their communes, and are consequently even supported during their stay. The examination, from the time it first commenced, in 1816, up to the present period, has been passed by 320 women, making on an average fifteen a year; while, during the union with Denmark, only about four were sent to Copenhagen yearly.

VACCINATION.

The practice of vaccination is enjoined in Norway by a law of the 10th April, 1810, by which inoculation for small-pox is prohibited under a penalty; and no one can attend a public school or institution, be taken as apprentice, confirmed, married, or enlisted, without proof of having previously been successfully vaccinated, or else of having had small-pox. The operation is performed by every medical practitioner who has passed his examination, and by persons of both sexes who, though not practitioners, have been taught how to vaccinate, and recommended by physicians for licence as assistant vaccinators. The person vaccinated is not required to pay any fee, but the operator is entitled to a small honorarium from the public purse for each successful case. There is reason to believe that vaccination is more universally employed in Norway than in most other countries, although the confidence in its efficacy as a preventive of small-pox has, during the last ten years, been diminished by the discovery that even those who have availed themselves of it may occasionally take that disease. The number vaccinated throughout the kingdom amounts to about 20,000 yearly. Revaccination, without being specially enjoined, has been frequently practised, especially during epidemic small-pox.

HOSPITALS.

The National Hospital and the Lying-in Institution in Christiania have been already mentioned. The state contributes to them 4,450 specie-dollars yearly, as schools for the future medical practitioners and midwives of the kingdom. The National Hospital is unquestionably the most complete and best regulated in Norway. Each of the larger cities has one or more infirmaries for diseases in general; and almost every one of the seventeen districts has a distinct infirmary for syphilis, rade-syge, and other malignant cutaneous diseases; but these are kept up at the charge of the respective cities or communes, and, generally speaking, stand in great need of essential improvements, with respect to situation, accommodation, and management.

Norway, like most other countries, is still very much behindhand in provisions for the cure of the insane. In consequence of a resolution of the Storting, in 1824, his majesty, in the following year, nominated commissioners to enquire into the state of the lunatics throughout the kingdom, and propose measures for its improvement. The report of these commissioners, comprising general observations on the proper construction and management of lunatic asylums, the actual condition of the insane then throughout the kingdom, a proposal for its improvement, and a statement of the

means whereby the requisite sums might be raised, was laid before the Storting in 1827, but with no other result than its being ordered to be printed at the public charge; neither has there been anything done in the matter at any session since. However, there is reason to hope that the very publication of the Report has been of service, as it may be the occasion of awakening and diffusing profitable, and, to the majority of our countrymen, new ideas on a highly important subject, and of gradually making the nation better aware of the great necessity there is that something should be done.

There are at present in Norway seven lunatic asylums, which, with the exception of a new one established in Bergen in 1826, can scarcely be considered as anything but so many depôts for incurables.

By a census taken in 1826, the total number of lunatics in Norway was ascertained to amount to 1,909; that is, with respect to the actual population, one in every 551. Of the above number, 1,005 were males, and 904 females; and there were 512 stated as *maniaci*, 376 *melancholici*, 341 *dementes*, and 680 *idiotæ*.

SCIENTIFIC SOCIETIES.

The Society of Sciences of Drontheim, (*Videnskabernes Selskab i Trondhjem*.) founded in 1760, and the Physiographical Association of Christiania, (*Den Physiographiske Forening i Christiania*.) in 1828, are interesting to the medical practitioner, not merely in a general literary point of view, but also because they embrace subjects relating to his own department; but the Medical Association of Christiania, (*Lægeforeningen i Christiania*.) founded in October, 1833, naturally presents a still stronger claim on his attention. This last meets regularly once a month, from September till May, and has besides extraordinary meetings not unfrequently. At these meetings papers are read and medical subjects discussed, and the Transactions are subsequently published. Christiania has also, since 1826, a Scientific Journal-Reading Society; and, since 1832, an Athenæum, which takes in medical works. It is worthy, too, of mention that, in 1829, the medical students at the university formed a Medical Improvement Society, the members of which assemble twice a month. This Society has a considerable resemblance to the Royal Medical Society of Edinburgh.

VETERINARY ART.

As long as Norway and Denmark were united, those who wished to become veterinary surgeons were sent to the Royal Veterinary School in Copenhagen, for the purpose of receiving the requisite instruction. The very first year after the separation, in the session of the Storting of 1815-16, a motion was made for a grant for the establishment of a similar institution in Norway; but other objects appeared to have stronger claims on the public purse, and accordingly Norway is yet without a veterinary school of her own. The consequence is, that pupils have still to be sent, as formerly, at the public charge, to Stockholm and Copenhagen, to learn the veterinary art, as practitioners in which they are subsequently established in Norway, after undergoing the requisite examination. In 1825, a young physician, *Candidatus medicinæ* C. B. Boeck, went, at the public expense, to Germany and France, for the purpose of spending two years there in the study of the veterinary art, in which he has been appointed lecturer since his return. At his suggestion, a shoeing forge was established at Christiania in 1832, at which instruction is given in the proper method of forming and putting on horse-shoes, as well as in the usual diseases to which horse's feet are subject. A collection has also been formed, under his superintendence, of zoological preparations and veterinary instruments, in provision for the establishment of a school.

MEDICAL ADMINISTRATION.

The administrative and executive medical department of Norway suffers in many respects from forms that are antiquated and inconsistent with the present state of the science; the oldest medical ordinance of the 4th of December, 1672, being still valid in most points. The necessity of a revision and reform of these regulations has,

therefore, been for many years acknowledged. In 1834, a royal commission was appointed to draw up a proposal for a new and improved legislative enactment on the subject; and their report may perhaps be recommended for adoption to the Storting of 1839. During the union, the medical concerns of Norway and Denmark were managed by the Royal Board of Health of Copenhagen, established in 1803. As the war that broke out in 1807 rendered the communication between the two countries tedious and uncertain, a Royal Board of Health was established in Christiania, in 1809. This was, however, dissolved again by the king, in 1815, by an edict which vested the management of these matters *pro tempore* in three official bodies; namely, the ecclesiastical and educational department, for civil affairs; the Army department, for military; and the Marine, for naval and such as relate to quarantine. At the same time, it was made incumbent on the faculty of medicine to assist the aforesaid bodies with such information and explanations as it might consider necessary; so that the faculty was appointed to the functions of medical assessor. Norway is, accordingly, unprovided with a board professionally acquainted with the subject to manage its medical concerns; a loss which has been constantly felt by persons of experience in such matters. I have even ventured myself to point out, in an essay written for the purpose, "The Necessity of the Establishment of a professionally informed Board of Health in Norway," (Eyr, 1833, pp. 324—352; also printed in a separate form;) and I feel confident that I have expressed in it the wishes and hopes of such of my countrymen as understand the subject.

Of medical practitioners who have civil employments, some are *Physici* (town or country), others district surgeons, others hospital surgeons. The number of these situations has considerably increased during the last twenty years; but almost all the present country physicianships and district surgeonships are much too extensive with respect to the space over which their charge extends, and should be divided into several less extensive ones, which it is hoped will gradually take place as the public finances may be found to admit of the requisite expense.

The army establishment consists of a surgeon-general, seven brigade surgeons, and a due proportion of corps and regimental surgeons; and the navy, of a chief surgeon, two corps surgeons, and some assistant surgeons. There are, besides, a class of private practitioners in Norway. According to the official lists, the number of licensed practitioners in the kingdom amounted, in 1816, to 99; in 1824, to 116; in 1833, to 129, (77 civil, and 52 military;) and at present may fairly be estimated at 140; a small number, certainly, (one to every 8,570 inhabitants,) in comparison with other countries, but which has yet increased at the rate of more than forty per cent. within the last twenty years.

The physicians and district surgeons receive from the public purse, or from their commune, a yearly salary of from 120 to 400 specie-dollars, according to the extent of their district and opportunities of private practice; the surgeon-general, 800 specie-dollars; the chief navy-surgeon, 600 *Spd.*; the corps-surgeons, 150 *Spd.*; the regimental surgeons, 180 *Spd.* The military medical officers receive, besides, lodging money, according to the nature of their appointments. For journeys on public business, dissections, and other legal examinations, there is a separate fee regulated by law. Every medical practitioner is likewise entitled to receive a certain honorarium from each individual whom he attends, which is usually determined by agreement; but, when claimed by law proceedings, is estimated by rules laid down in the enactment of the 4th of December, 1672.

Under the immediate control of the medical practitioners are the apothecaries' shops, of which there are at present thirty-seven licensed in Norway, all in towns. In the country, and in towns where there are no such shops established, the practitioners themselves have to dispense medicines to their patients.

In the preparation of medicines, the *Pharmacopœia Danica* (Hafniæ, 1805.) is still followed; but, as it is no longer adapted to the present state of medical knowledge, a royal commission was established some years ago to compose a *Pharmacopœia Norvegica*, which is now so far advanced that there is reason to hope it will be soon finished. Medicines are dispensed by the apothecaries only when prescribed

by authorized medical practitioners, with the exception of a few simple ones specially named in the enactment. They are bound by law to charge for them according to a scale of prices, constructed after certain rules by the ecclesiastical and educational department, and altered as often as a fall or rise in the price of drugs renders it necessary.

It is incumbent on all the licensed practitioners in the kingdom, whether in official stations or in private practice, to send in yearly, to the Ecclesiastical and Educational Department, a medical report containing as full and accurate information as their opportunities afford respecting the epidemic, endemic, and contagious diseases of the year, as well as the state of the weather, the quality of provisions, and manner of living; also respecting the attendance on the poor, management of disease, mortality, bathing regulations, vaccination, and everything relating to apothecaries, midwives, examinations of dead bodies and other medico-forensic proceedings, quackery, &c. From these the department compiles a General Report, which is laid before the king, and afterwards printed in the Gazette of that department and in the "Eyr."

LITERATURE.

The medical literature of Norway is but of small extent, and will probably always continue such in proportion to the population; as the latter is not great,* the medical practitioners are but few, and the language of the country is understood by very few out of Scandinavia. Consequently, neither the medical man who might feel inclined to come forward as an author, nor the bookseller who is able to undertake the cost of printing the work, has the same encouragement as in other countries. It would, therefore, be unjust to consider the paucity of literary productions in that country as a proof of the incapacity of its medical men. The facilities of communication with other countries makes them pretty soon acquainted with foreign publications on subjects in their department; and we have no well-informed practitioner who does not take one or more of the best foreign Medical Journals, and procure the more important works by foreign medical writers. The medical works that have appeared in Norway have, in almost every instance, been called forth by particular occasions, or possess merely a private or local interest. The following are those that have been published since 1814.

J. G. DOEDERLEIN: *De Catarri theoria*. Diss. pro licentia.—Christianiæ, 1816. 8vo. CHR. HEIBERG: 1. *De Coremorphosi*. P. i. Diss. pro licentia.—Christianiæ, 1827. 8vo. 2. *De Coremorphosi*. P. ii. Diss. pro gradu Doctoris.—Christianiæ, 1829. 8vo.

J. J. HJORT: 1. *De Functione Retinæ*. P. i. Diss. pro licentia.—Christianiæ, 1826. 8vo. 2. *De Functione Retinæ*. P. ii. Diss. pro gradu Doctoris.—Christianiæ, 1830. 8vo.

FREDERICUS HOLST: 1. *De Acidi Nitrici usu Medico*. Diss. pro licentia.—Christianiæ, 1816. 8vo. 2. *Morbus, quem Radesyge vocant, quinam sit, quanamque ratione e Scandinavia tollendus?* Diss. pro gradu Doctoris.—Christianiæ, 1817. 8vo. 3. *Remarks on the Modern Prisons of Great Britain, with especial Reference to the Necessity of an Improvement in Prison Discipline in Norway; with two lithographic Plates*.—Christiania, 1823. 8vo. xviii. 234.

4. *Historical Account of the National Hospital at Christiania*.—1827. 8vo. xii. 148; with a lithographed Plate.

5. *Report of the Commission appointed by the King, in 1825, to examine the Condition of Lunatics in Norway, and propose a Plan for its Improvement*. With

* A general census has as yet been taken but at five periods in Norway, namely:

The 15th of August, 1769, when the population was found to amount to	753,141
The 1st of February, 1801,	883,038
The 30th of April, 1815,	885,431
The 27th of November, 1825,	1,051,318
The 29th of November, 1834,	1,194,812

The area of the country is equal to 5,742 square geographical miles, and consequently there are but 208 inhabitants to each square mile.

a Collection of Tables, and two lithographed Plates. Published by his Majesty's Orders.—Christiania, 1828. 8vo. xiv. 139.

N. B. SÖRENSEN: Collegium Academicum Universitatis Regiæ Fredericianæ, summos in Medicina honores Licentiato Frederico Holst, die xviii. Junii, 1817, conferendos indicat.—Christianiæ, 1817. 4to. A Program, in which the author treats of an affection of the neck often wrongly considered as syphilitic.

Provisional Regulations for the National Hospital at Christiania.—Christiania, 1826. 8vo. 66.

S. F. HANSTEIN: The Indian Cholera; a Work for the People.—Drammen, 1832. 4to.

Magazin for Naturvidenskaberne, (The Magazine for Natural History.) This publication, which was commenced in 1823, was at first a quarterly one, but now comes out at uncertain periods. It was originally edited by Professors Hansteen, Lundh, and Maschmann, and afterwards by Lecturer Boeck, but has been latterly conducted by the Physiographical Association.

Eyr, a Medical Gazette, commenced in 1826, and for the first five years edited by Professors Skjelderup and Holst, but afterwards by Professor Holst alone. During the first ten years, (that is, up to 1835 inclusively,) the numbers came out quarterly; but they are henceforth to be published at irregular periods, just as sufficient materials are procured, and to consist principally of original articles by Norwegian authors, and information concerning the medical affairs of the country.

Budstikken, (The Express,) a weekly paper on statistical, economical, and historical subjects; it also contains various medical articles.

This short account of the state of medical affairs in Norway shows that there is room for improvement in many respects. At the same time, however, it must be allowed that, on the whole, considerable progress has been made during the last twenty years. Thus, the Faculty of Medicine, by the increase in the number of its professors, has been enabled to deliver instruction, both in a more complete manner and in a shorter time; more medical situations have been established, and places, before destitute of apothecaries' shops and midwives, provided with the same; while the nation at large has become possessed of a much greater number of skilful physicians, apothecaries, and midwives, as well as some better organized infirmaries, &c.

Christiania; October, 1836.

F. H.

[The present Report was forwarded from Christiania last October, but the vessel which conveyed it was forced back when near the English coast, and obliged to winter in Norway: consequently, the Report did not reach us until the beginning of the present summer. For the foregoing translation of this interesting document from the original Danish, we are indebted to our most learned and excellent friend, Dr. West, of Dublin, whose extensive acquaintance with modern languages is well known.—Ed.]

FIFTH ANNIVERSARY MEETING OF THE PROVINCIAL MEDICAL AND SURGICAL ASSOCIATION,

Held at Cheltenham, on Wednesday, the 19th, and Thursday, the 20th, days of July, 1837.

BY AN ORIGINAL MEMBER OF THE ASSOCIATION.

THERE are many very respectable members of the profession who regard these anniversaries with indifference, as there are also many men who, whilst their love of science is unquestionable, regard the annual meetings of the British Association with a similar feeling. We are not of the number. Even if we were to grant, which we can by no means do, that the cause of science is very little advanced by these periodical meetings, we should contemplate them with pleasure, as affording opportunities for the cultivation of those liberal feelings, in the absence of which science itself loses half of its attractions. In whatever towns the British Association has held its meetings, science has experienced a local and salutary impulse; and, wherever the Medical and Surgical Association has assembled, it has probably done something towards harmonizing the resident members of the profession. The rivalry of those

who advocate different views is by nothing more mitigated than by a personal introduction of the rivals. The misconceptions incidental to those who pursue success in the same or in neighbouring towns are by nothing more surely removed than by the easy intercourse of a friendly meeting. The reviewer and the reviewed sit down together at the social board in charity. Youthful and ambitious members of the profession, solicitous to leave nothing undone that may conduce to professional success, can on few other occasions see so many of the members of the profession whose career has been successful; and derive from an acquaintance with them the important conviction that, notwithstanding the general ignorance of the public, and the occasional prosperity of the unlettered and mendacious quack, those who most enjoy the public confidence most deserve it by their attainments and their studious labour, and do most honour to it by simplicity of manners and integrity of character. Divided, as medical friends for the most part are, by distance, and enchained by duty, there was long wanting some inducement strong enough to make them occasional truants from their daily round of duties; and such an inducement has arisen in the annual meetings of the Association, which we have each year observed to be attended by some of the busiest as well as the ablest men engaged in the practice of medicine and surgery. They indeed, above all others, must be sensible of the advantage of change of place, of air, and of ideas, and the exchange for social pleasures of the common and engrossing cares of life. It is impossible to look on the crowd of faces at these meetings without seeing indubitable signs of the habitual anxieties which so soon "delve the parallels" in the brow of those whose business it is to cure diseases; and without being convinced that to none is the occasional refreshment of a happy holiday more useful.

A lover of his race might derive satisfaction from repairing beforehand to the place of annual meeting, and watching the arrival of the coaches. From the interior or exterior of the Telegraph and Highflyer, he would behold emerging or descending many a wise and venerable looking gentleman, arrayed in black; wearing perhaps a somewhat portentous hat, and aided by a cane much respected in the localities where it is usually flourished. The waiters and chambermaids of the hotels are seen to stand amazed at the sudden influx of gentlemen of clerical aspect, saving their paleness and attenuation, and, accustomed as they are to the marks of men of fashion and men of commerce, are perplexed with a new race, to them collectively unknown, and whose individual gravity unbends, amidst the recognitions of the coffee-room, and becomes lost in the general joy of the newly assembled company. The greetings on the steps and in the passages are many and hearty; the exclamations, every time the door opens and a new arrival occurs, not a few; and the merriment great, on ascending to the fifth story, to find that to this height the dignity of a houseful of doctors has come at last. Many are the pleasant little dinner-tables made up, and pleasant, above all, is the talk. Here you have great men who have never met since both were pale and anxious students; here others, who have never seen each other since they were boys. When the two grave-looking men now discoursing by the window were last together, it was as apprentices in "a northern county, bounded on the east by the German Ocean," &c. &c., when, if the truth must be remembered, much of their time was employed, as in the case of Lord Thurlow and Cowper, when clerks to an attorney, "in giggling and making giggle." They giggle no more; but they smile yet, and are happier at this moment than they have been for years. You hear the names of Dr. Hawthorn and Mr. Primrose announced: the one was your schoolfellow, the other is your cousin; and you knew both as idle, happy, clever, careless boys; but have never seen them since boyhood. In Dr. H., now fifty years old, you recognize the stout, good-humoured face of him whose Latin exercises you used to perform for mere love; and in Mr. P. the thin and meditative youth,—so given to poetry, and so smitten in old time with one of the beauties in Miss Nevernsmile's boarding-school. Dr. H. is stouter than ever, although paler, and he is full of all sorts of learning, mixed with abundance of goodnature. Mr. P. is still pale and meditative; but writes no more sonnets: he has lost his health in studious researches, and has a wife and seven children. With these and many other friends you dine on this first evening, and you find all old feelings reviving which seemed dead. There is an

unspeakable satisfaction in discovering that the good qualities of the boy have ripened into the virtues of the man; and that, whilst the intellect has undergone its highest cultivation, the heart has lost none of its warmth. The grace imparted to the mind by the liberal sciences connected with medicine polishes without destroying the gems disclosed in youth, and, with increased splendour, they retain all their intrinsic value.

Who shall describe the talk of this happy evening! In this secure corner we have a knot of eight Edinburgh graduates, of some twenty years' standing, or it may be more or less. Their talk is of old times; of Gregory and Duncan, of Rutherford and Home and Monro; of walks to Arthur's Seat, and of breakfasts at Roslin; and of epidemics watched in the clinical wards, and curious cases in Libberton's Wynd and the Bow; and of perils past in examinations, and of subsequent progress made by all; of difficulties overcome, opponents baffled, talents acknowledged, and merit rewarded.

Soon after the arrival of the members at the town of meeting, it is customary for them to repair to some central committee-room, to record their names in the book of arrivals. The preciousness of that book can only be known to those who, running through its crowded pages, have felt their breasts throb with delight on reading successively the names of much-loved friends, who have already reached the place, and are for a few days once more their actual neighbours. Intermixed with these occur the names of many distinguished authors and many practitioners of celebrity, whose fame has reached us, and whom we long to see. An hundred recognitions take place. Questions and replies, enquiries and congratulations, and heart-rejoicings abound; and every man feels that the cares which did but yesterday cling close to him, as if resolved to quit him never, are full a thousand miles off. Happy friendships, long-forgotten smiles, old talk, and, as it seems, youth itself, all are restored. Not but what we mark, in these meetings, the inevitable transition from youth to age in many a friend. Encroaching wrinkles, a sprinkling of silver hairs, a suspicious patch denuded over the organ of self-esteem, and a slight decay of animal joyousness: all these we cannot but discern, although they are matters seldom alluded to, and do but raise a slight suspicion that our friends recognize some signs that even we ourselves are not immortal. But, if the outward figure yields to the inevitable law, the mind has gained the while. We observe in many a friend the increase of knowledge and accomplishments, and greater serenity, the effect, probably, of the habitual contemplation of life and death, which is creative of an unpretending philosophy that gives a peculiar charm to the conversation and life of a medical practitioner of a reflective mind and amiable character. It is a proud thing to know, too, that amongst those whom we love for their good qualities, and respect for their knowledge, and admire for their sincerity, the greater part are men of mark and influence among their neighbours; and known as the supporters of every truly liberal doctrine, the promoters of every real improvement, the friends, in short, of all their fellow-creatures. Of all the assembled crowd, rejoicing in this day, devoted to friendship, to cheerful conversation, and refreshing leisure, there is perhaps not one whose mental or whose moral attributes do not diffuse their influence to some circle more or less extended of friends, neighbours, and acquaintance; and for the most part, without all question, for good.

FIRST DAY'S MEETING.

The first meeting of the Council of the Association was held on the morning of Wednesday, July 19th, at the rooms of the Literary and Scientific Association of Cheltenham. The exterior of this building is classical and elegant, on the model of a temple at Athens. In it lectures are frequently delivered to the inhabitants and visitors of Cheltenham, and tend, we hope, to diffuse a love of science and letters in that fashionable and agreeable place of resort. The whole of the building was on this occasion given up to the members of the Association. Indeed, we must observe that the arrangements of the Cheltenham committee were in every respect so liberal and judicious, and dictated by such an evident desire to promote the comfort of those attending the meeting, as to reflect upon them the highest degree of credit. The chair was taken by Dr. HOLME, of Manchester, at half-past twelve o'clock, and the Council meeting did not break up until half-past three.

About eight o'clock in the evening, the chair was again taken by Dr. Holme, and the general business of the meeting commenced. In a short speech, expressive of his sense of the honour done him by appointing him to preside at the meeting held last year at Manchester, Dr. Holme resigned the chair to the president elect, Dr. BOISRAGON. The respect of the members for Dr. Holme was strongly manifested towards him by the meeting, all justly feeling that his great learning and his high character, as well as his zealous exertions for the welfare of the Association, conferred honour upon them, and entitled him to their grateful remembrance.

Dr. Boiragon's speech on assuming the chair was, like that of the late Dr. Carrick, at the Bristol meeting, read from a manuscript; a plan which ensures correctness, and relieves the timidity of an unpractised speaker, but which, whilst it was not on this occasion requisite for the latter reason, (for Dr. Boiragon possesses remarkable fluency and ease of diction,) gives a dulness to the commencement of the proceedings which is not desirable. As written reports have generally to be received at these meetings, and an elaborate retrospective address, it would certainly be desirable that the other parts of the business of the meeting should not lose any possible portion of animation. Dr. Boiragon's address was by no means without animation. He dwelt, with evident complacency, on the rise and progress of a spa, with the celebrity of which his own has long been associated; and magnified the salubrity of Cheltenham beyond what some of the medical topographers who had descended to it that evening from the surrounding hills were inclined to believe it quite deserved. Dr. B. also introduced a witty but somewhat long exposition of the follies of homœopathy; and alluded feelingly to the deaths, since the last anniversary, of Drs. John Johnstone and Dr. Carrick, both of whom had presided on former occasions.

Dr. Hastings, then, as one of the secretaries of the Society, read the Report of the Council for the year 1837. There are not a few members of the Association who fancy that their professional engagements present an insuperable obstacle to their attending the anniversaries of the Association, who should reflect that this eminent practitioner, whose wide engagements in Worcestershire and the neighbouring counties are well known, has never yet been absent from one meeting, and that he finds time to attend during the year to all the business of the Association, in which few of those who enjoy the mere annual festival take any share. The results have been in proportion to the great exertions made by Dr. Hastings; although even these could not have raised the Association in five years from a commencement of sixty persons to a society of nearly one thousand, unless seconded by the general estimation he so justly enjoys, and the extensive influence he has thus been enabled to exercise. There can be no more gratifying spectacle than that of a physician so eminent and influential devoting all his leisure and all his influence to the noblest objects.

The Report stated that the number of members had, during the past year, increased from 600 to 940; chiefly in consequence of the establishment of District Branches. In this respect the Eastern Association has been honorably distinguished by abandoning all exclusive arrangements, and resolving itself into the general body; of course, reserving to itself the right to hold separate meetings, a right which it is much desired that each District Branch should exercise. For this arrangement we presume the Association is not a little indebted to Mr. Crosse, of Norwich, that distinguished surgeon being also one of the members who is, notwithstanding his extensive and even harassing engagements, among the most regular attendants at the annual meetings. District Branches have been established also at Wells, Bath, and Southampton, and the latter is already very extensive. The following resolutions were recited in the Report, as called for by the formation of these, and they were afterwards unanimously agreed to by the meeting.

"1. That, in order to fulfil more effectually the several purposes for which the Provincial Association was formed, it is expedient that a still more intimate union of its members be promoted, by the establishment of District Branches.

"2. That members of the Association be at liberty to form District Branches wherever it may suit their convenience.

"3. That, in order to facilitate the formation of such Branches, and maintain uni-

formity amongst them, the General Council provide suitable instruction for the guidance of those who may unite in instituting them.

"4. That conformity with these instructions be further ensured, by the initiatory proceedings, and organization of such Branch, being submitted to the General Council, for their revision and approval.

"5. That the District Branches be free to govern themselves as their respective members may think fit; but that the by-laws ordaining the special government be submitted to the General Council previously to their taking effect, in order to guard against the possibility of any such by-laws contravening the fundamental laws of the Association.

"6. That all members appointed to offices by the District Branches be forthwith enrolled as members of the General Council, on the appointments being officially notified to the General Council; it being highly expedient that all who engage in the executive management of the District Branches should be also members of the General Council.

"That the expenses incurred by the District Secretaries in conducting the proceedings of the District Branches be defrayed from the general fund, provided such expenses do not in any instance exceed one-seventh part of the guinea subscribed by each member enrolled in the District Branch.

"8. That, if any circumstances arise in the formation of District Branches which call for a larger expenditure than what is allowed by the foregoing resolution, such expenses, provided they do not exceed one-fourth of the guinea, may be allowed, by a statement of the circumstances being made known to the General Council."

Of the finances, the Report contained a satisfactory account. During the past year the receipts have been 1,010*l.* 8*s.* 11*d.*, and the expenditure 698*l.* 6*s.* 10*d.*, leaving a balance of 312*l.* 2*s.* 1*d.* The chief items of expenditure are the publication of the annual volume of Transactions, and of a Poor-law Report made by a committee appointed at Manchester.

The Council complain of the apathy of provincial physicians and surgeons attached to hospitals and infirmaries, as regards Vital Statistics. They also notice the question of Parochial Medical Relief; the proceedings of the committee of the Benevolent Society; and the new Act relative to the Registration of Diseases, in connexion with which subject they exhort the members to supply Meteorological Reports. They also announce that Dr. Thackeray, of Chester, "has increased his already liberal donation to fifty pounds, to be given as a prize for the best essay on a medical subject." This prize the Council propose to call the Thackeray Prize, "to be open to the competition of the members of every accredited school for medicine and surgery in the United Kingdom."

Several resolutions, most of which were suggested by the Report of the Council, were then submitted to the meeting, and, after discussion, were generally passed. It was unanimously resolved that the next anniversary meeting should be held at Bath, under the presidency of Dr. BARLOW; and that Dr. MALDEN, of Worcester, should deliver the Retrospective Address. Committees were appointed for various objects; among others, "to decide on the subject of the Thackeray prize;"—"to watch over the interests of the profession at large, and suggest such measures as may appear necessary to meet circumstances as they arise;"—"to report on the communications received respecting the Influenza," &c.; and resolutions were passed, pledging the gentlemen present to "urge upon the members of the legislature, in their several localities, the importance of an enlightened consideration of the questions touching the public health pending in Parliament," and suggesting to the members of the Association generally "the propriety of lending their aid to carry into effect the recent Act to procure an improved Registration of Births, Deaths, and fatal Diseases."

SECOND DAY'S MEETING.

Although the business of the preceding evening was not brought to a conclusion until a late hour, the gardens of the magnificent Pitville Spa were full of medical stragglers early the next morning, a part of the plan being a public breakfast in the spacious rooms above the grand pump-room of that establishment. Many acres of

ground surrounding this spa, which lies to the East of Cheltenham, and about a mile from High-street, are laid out with much taste and beauty. Fine trees, a beautiful piece of water, numerous shaded alleys, and a building which might almost be called a palace, commanding splendid views, contribute to the attractions of the spot, around which are scattered many elegant mansions, intermixed with comfortable houses of more moderate pretensions. At nine o'clock, the whole party sat down to an excellent breakfast, provided under the direction of Mr. Seymour, the resident at the Spa. At the conclusion of the repast, and by the particular desire of many of the subscribers to a portrait of Dr. Hastings, proposals for which were placed before the members at the Manchester meeting, Dr. John Conolly communicated to those present that the design would now be proceeded in forthwith; and papers were sent round to receive additional names. The intention of the subscribers is to present Mrs. Hastings with a portrait of Dr. H., painted by an eminent artist, each subscriber being furnished with a finished engraving from it. No compliment was ever better deserved; and none, we should imagine, could be thought of more likely to gratify Dr. Hastings' family.

The members of the Association then adjourned to the Literary and Scientific Institution, where Dr. Marshall Hall, (who had travelled from London with Dr. Webster of Dulwich to meet the association,) delivered a highly interesting lecture to them on the Excito-Motory System of Nerves, illustrated by a few experiments. All the hearers bore willing testimony to the pleasing and candid manner of the lecturer, as well as to his zeal, industry, and ability; and a vote of thanks to him was carried by acclamation.

At twelve o'clock a general meeting of the members took place in the Montpelier Rotunda, a large and elegant circular apartment, well known to all who have drunk the Cheltenham waters. Commodious apartments at the side of the large room were appropriated to the Poor-Law and other Committees. Here, as at the rooms of the Literary and Scientific Association, the arrangements for the reception and comfort of the members met with universal approbation.

The proceedings of the day were opened by Dr. BOISRAGON, the President, and the first business was to move an address from the Association to the Queen. The address was proposed by Dr. BARLOW and seconded by Dr. JOHN CONOLLY, and was unanimously adopted by the meeting. It was resolved that the address should be presented by a deputation from the Association consisting of Dr. Boissragon the President, Sir Astley Cooper, Dr. Kidd, Dr. James Clark, Dr. Hastings, and the mover and seconder.

Dr. JAMES LOMAX BARDSLEY, of Manchester, being then called on by the President to read the Retrospective Address, delivered a luminous and elaborate discourse, the length of which, and the numerous and minute details and elaborate research displayed in it, defy the abridgment indispensable in a sketch of this nature. It comprehended all the discoveries and improvements of the past year, in Anatomy, Physiology, Phrenology, Medical Statistics, Medical Literature, and Chemistry; took a view of the nature, causes, and treatment of Cholera and Influenza; paid a just tribute of respect to the memory of those departed lights of science, Dr. Henry, Dr. Turner, Dr. John Johnstone, and Mr. Ransome, of Manchester; sketched out the most advantageous plan for the education of professional men, and triumphantly exposed the vices and follies of ignorant quackery, stating very justly that licentious empiricism was strangely at variance with the boasted intelligence of the nineteenth century, but that charlatanism seemed to receive encouragement in proportion to the boldness and impudence with which it was promulgated. The address was most enthusiastically received, and it was proposed by Dr. FORBES, and seconded by Dr. SYMONDS, that it should be printed and circulated among the members.

Dr. BARON, being now called on by the Chairman, read the Report of the Benevolent Committee, and prefaced it by some remarks as to the object that Committee had in view, which was to relieve members who had fallen into unavoidable misfortunes. The report fully explained these intentions, and stated that they had already, in some instances, been carried into effect.

It was then moved by Dr. HOLME and seconded by Dr. WM. CONOLLY, "that

the Report be adopted and printed; and that the Association take this opportunity of expressing their thankfulness that the Benevolent Fund has been rendered useful to some of their suffering brethren; and that the suggestions contained in the Report for increasing and collecting the contributions, be earnestly recommended to the consideration of every Member of the Association."

Dr. DAVIES, of Presteign, in a highly flattering manner, proposed that their visitor, Dr. Macartney, Professor of Anatomy, Trinity College, Dublin, be elected an Honorary Member of this Association, which being seconded by Mr. CROSSLAND, of Norwich, was carried by acclamation.

The Secretary, Dr. HASTINGS, then read the letter of Dr. Thackeray, announcing the liberal prize of 50*l.* for an Essay on a Medical Subject; and on the report of the Committee on that point being called for, Dr. Barlow solicited an extension of the time allowed them to two months, and recommended that the Essays for competition should not be sent in till May, 1839.

Dr. WEBSTER, of Dulwich, seconded by Dr. M'CABE, proposed "that the highly important report of the Poor Law Committee be read," which was accordingly done by Mr. W. H. Rumsey, of Chesham, Secretary to that Committee, as follows:—

"The Poor Law Committee having been requested to direct their attention once more to the state of medical relief for the sick poor, submit the result of their deliberation for the consideration of the Association. Seeing that the evils detailed in the report of last year continue unabated, notwithstanding the steps already taken by the Association and the profession at large, your Committee think it highly important at the present juncture that energetic measures should be pursued, and beg to urge this question on the attention of the Legislature and the public, until a parochial or national system of medical relief for paupers be settled on a basis equally humane to the poor and just to medical practitioners. With a view effectively to make known the opinions and feelings of this Association, your Committee also recommend that personal and written communications be made by members of the Association, in every locality, to their respective representatives in Parliament. Your Committee also recommend that petitions be presented immediately on the assembling of Parliament, praying for a special, full, and impartial enquiry into the subject of medical relief, and for the production of official returns of all medical contracts made under the new law, of the number of practitioners employed compared with those under the former system, of the extent of districts intrusted to medical officers, of the amount of their salaries, the mode of appointment, the number of patients attended and visits made by each medical attendant. If after the adoption of these measures there be not a fair prospect of redress by Parliament, it is the opinion of your Committee that members of this Association ought no longer to sanction a system alike degrading to themselves, and cruel and delusive to the sick poor. To use the words of their last report, 'We ought firmly to decline any participation in the medical regulations under the New Poor Law.'

"If the profession had been true to itself, and if medical men had in private acted up to those declarations which they have made in public, the matter would have long ago been equitably arranged; but whilst unprofessional, mean, and selfish conduct continues to disgrace our body, we cannot wonder that the authorities should take advantage of our delinquencies.

"The influence of this Association ought to be exerted upon its members, to induce them not to swerve from those admirable principles upon which we profess to move.

"Your Committee, in thus bringing to a conclusion their labours, cannot refrain from expressing a confident hope that the subject which has for so long a period engaged their attention, will be followed up to a successful issue by the energies and decision of the Association; and they view with much satisfaction the appointment which has just been made of a permanent Committee of this Association, "for the purpose of watching over the interests of the profession," convinced that this subject will immediately engage their entire attention."

Dr. WEBSTER then moved, and Mr. ADDISON of Malvern, seconded the resolution.

tion—"That a petition be drawn up in conformity with the recommendations of the Poor Law Committee, to be signed by the President on behalf of this Association, and presented to both Houses of Parliament immediately on their assembling."

It was also moved by Dr. MALDEN, and seconded by Dr. COLEY—"That a form of letter in conformity with the recommendations of the Poor Law Committee be forthwith prepared and printed and transmitted without delay by every Member of this Association to their parliamentary representatives and friends;" and, on the motion of Dr. W. CONOLLY, "A vote of thanks was passed to the Poor Law Committee, especially to Mr. Rumsey, for their important and invaluable services."

After the breaking-up of this interesting meeting, all the proceedings of which were marked by the utmost unanimity of feeling, the members had about an hour and a half of leisure before the hour of dinner; and were to be seen dispersed in groups in the beautiful gardens of the Montpellier Spa, and in most of the principal streets of the town, particularly in High street, where their numbers and appearance caused evident surprise among the indolent occupiers of the green chairs in front of the libraries, and, we fear, deluded many an anxious tradesman into the pleasing belief of a remarkable arrival of invalids. It was truly agreeable to see the numerous introductions, the friendly groupings, the lively countenances of so many intelligent and laborious members of a cultivated and hard-working profession.—But time advances with steady pace, and even dinner is at length ready. This entertainment was laid out in the Assembly Room, certainly one of the finest apartments in the kingdom; spacious, lofty, well-proportioned, decorated with singular taste and elegance, and so arranged as to preserve, even with a large company, the comfort of a moderate and equal temperature. We have never seen a dinner more comfortably served. Most of the public dinners in London which we have witnessed were held in immense and dingy apartments, and hurried over with numerous discomforts. We have been constant in our attendance at the meetings and dinners of the Association. That of Bristol left indelible impressions, as was to be expected in a city so renowned for luxurious hospitality. That of Birmingham will never be forgotten, for every opposite quality. That of Oxford was befitting a place scarcely less celebrated for its magnificent entertainments than for its learning and science. That of Manchester was substantially good and comfortable. But the palm of dinner must be conceded to Cheltenham, where the abundance and goodness of the dinner itself, its cheapness, the excellence of the wines, the beauty of the apartment, and the delightful accompaniment of the first quadrille band out of London, conspired to make every guest forgetful of the admirable precepts propounded often to obedient and disobedient patients. Of such precepts, however, truth to say, no men are less forgetful than medical men; and the example of their well-restrained and rational conviviality might be usefully followed by other classes of people. We are not among those who consider it unphilosophical, in the ordering of these meetings, to take heed to the substantial refreshments. Many a good institution has suffered by the insufferable badness of the annual dinner at a common inn; and, for the good of the District Branches, as well as of the parent stock, we think it by no means unworthy to be recorded that an excellent dinner was provided at Cheltenham for ten shillings and sixpence a head, and that the wines, being furnished by a respectable wine-merchant, were pure and good, and sold at reasonable prices. The thanks of the company were certainly most due to the committee by whom such excellent arrangements were carried into effect. The comfort resulting from it was unspeakable, and most felt by those in the habit of paying one guinea for the privilege of being half starved and half poisoned.

We regret that we cannot afford space for full details of the dinner. Dr. Boisragon presided, and, it is almost superfluous to say, with urbanity, cheerfulness, and dignity, and did all that any president could do to ensure the enjoyment of every one present. Nothing could be more felicitous than the manner in which he proposed the health of Dr. Hastings; of whom he most justly observed, that he had "created an era in the annals of the profession, and had accomplished more than had been done by any individual since the days of Linacre. Eminent for his attainments in literature and science, he was endeared to them as the originator and founder of that

Association, which would do much to redeem the medical profession from the calumnies of those who preferred ignorant arrogance, and impudent empiricism, to talent, learning, and self-denial."

To those of our distant readers who have not the happiness to be acquainted with Dr. Hastings, and who yet receive these details with interest, we wish we could convey an adequate impression of the spirit and energy of his reply to these demonstrations of regard. Dr. H., although he has attained the highest degree of professional celebrity, is still in the prime of life. To great talents, and an industry which seems incapable of being exhausted, he adds the fervour of temperament, which, when, as in his case, united with a calm judgment, leads to the undertaking and execution of great and noble designs; and these qualities are associated with a highly benevolent disposition, and the most frank, cordial, and unaffected manners. It is easy to perceive, by the terms on which he is with his immediate medical neighbours, (many of whom invariably accompany him to the meetings of the Association,) that he is in the habitual practice of the utmost professional liberality; and the extent to which he enjoys the confidence of the public is attested by a very extensive practice, and by the power he has so admirably shown that he possesses, to secure the prosperity of many local institutions of great utility to the part of England in which he resides. His speech in acknowledgment for his health being drunk abounded with warm and generous feelings, and was distinguished by a freedom of sentiment on all points affecting the state of the profession which ought to secure both him and the Association from the animadversions of a portion of the medical press, which we can only ascribe to complete misconception of his views and those of the majority of the members, and especially of those who are generally the most active in its affairs.

When Cheltenham was first proposed as an eligible place for holding the late annual meeting in, some of the members of the Association openly expressed their doubts whether, in a watering place, devoted to pleasure and to fashion, the medical residents would be found to care anything about the Association or general professional interests. It is, therefore, particularly due to Cheltenham to state, that the manner in which the Association was received there was no less gratifying to the members than honorable to that town, and to the character of its medical residents. Among these, the members sufficiently testified, by their cordial reception of Dr. Baron, when that learned physician came forward at the morning meeting to advocate the claims of the Benevolent Fund; and again, after dinner, when they drank his health as the biographer of Jenner, (once a resident of Cheltenham,) that they considered him to hold a very high place: and it was not a little gratifying to hear one so distinguished by acquirements and character speaking with fervent admiration of the great discoverer of vaccination, whom he had personally known, as "not only one of the greatest of medical men, but one of the best of men; one who to him (Dr. B.) had been as a father and a friend, and than whom a kinder, more just, and more benevolent and single-hearted man never existed." Such is, indeed, the true description of the moral qualities of a good physician; and it will ever be a source of pleasurable reflection to us to have heard this surviving testimony to the illustrious Jenner, so many years after the grave has closed upon his exertions for the benefit of mankind.

We could dwell with satisfaction on the manner in which the president proposed, and the company received the healths of Dr. Bardsley, of Dr. Holme, Dr. Barlow, and other eminent members of the Association; men whose very names, in all who know them, excite recollections of talents and virtues which command equal respect and affection. The manner in which Dr. Barlow's health was received sufficiently evinced the consideration with which that learned physician is regarded by his brethren. In assembling under his auspices at Bath, next July, we feel assured that the members will experience more than ordinary pleasure, arising out of a regard for so enlightened a president and so good a man. To become acquainted with such men is a privilege which many will ever consider as one of the most cherished that the Association has conferred or can confer upon them.

To conclude our notice of this agreeable day without allusion to Dr. Malden's incomparable after-dinner speech, would argue a want of appreciation of the wisdom and the wit which that highly respected member of the Association has the art of blending in a manner quite unapproachable by the generality of speakers. Relying

on the possession of extensive and solid acquirements, and perhaps a little on a pre-possessing exterior, Dr. Malden ventures upon flights of fancy and of mirth which take philosophical men by surprise, and shake the sides of grave and gay alike. When you think he is venturing into altitudes whence there is much danger of a lame and lamentable fall, he spreads out a parachute of eloquent good sense, and descends gracefully to a less elevated region: and, when men of less smartness and readiness rejoice that he is treading upon level ground with them, he extends his light wings, and leaves them gaping and amazed, and, withal, amused to the last degree. His language is figurative and startling: ancient learning, modern accomplishments, forcible imagery, classical allusion, are all at his command. We venture to prophesy that the Retrospective Address to be next year delivered by him, will justify all that we have said of his attainments, and illustrate our description of those graces of manner which have rendered him so especial a favorite with his friends and acquaintances.

When all the toasts had been gone through, a *Conversazione* was held in an adjoining room, and, although of the intercourse there facilitated, and the interchange of experience and of friendly sentiments, no public record can exist, that last friendly hour had many and great attractions, which disposed, we feel quite sure, many who then parted, not to forego future opportunities of renewing the same social and elevated enjoyments another year. In a word, whatever of good feeling, whatever of the spirit of high and legitimate research, whatever of desire for the general good of the profession, its best friends would wish to see encouraged, received at this great meeting of physicians and surgeons all the support which their example and their expressed opinions could give to such objects. That the best interests of the profession will be promoted and defended, and numerous useful investigations suggested, in consequence of the existence of this large and influential Association, we do not entertain a doubt; but, if no such benefits were to follow in a formal shape from its establishment, we shall still consider that its Anniversaries are calculated to produce effects the most beneficial on the general tone and temper of the profession; and, with this fixed impression, we heartily pray that its duration and its prosperity may be as extended and as brilliant as its distinguished founder and as its warmest supporters can desire.

PROVINCIAL MEDICAL ASSOCIATION.

[We recommended the following suggestions to the particular attention of the Council of this Society. They are extracted from an article in the "*British Annals*" by the editor of that clever Journal.]

The Associations principally promote science by bringing kindred minds together, and exciting a salutary enthusiasm in the pursuit of science that communicates itself to individuals which, in other circumstances, would remain indifferent. With these elements, a judicious division of labour, and a rational organization, the Associations will bear abundant fruit. The Council of the Provincial Medical and Surgical Association (which we shall call the Medical Association,) should be divided into sections. There may be (1) an anatomical and physiological section; (2) a section of pathology and practice of physic; (3) a section of surgery; (4) a section of chemistry, botany, and pharmacy; (5) a section of vital statistics; (6) a section of medical police. Each section should meet before the general meeting; papers might be discussed; experiments repeated; formulæ demonstrated; and the results to be submitted to the general meeting determined. Instead of one retrospective address, a brief, rapid report should be read by a person deputed, at the previous annual meeting, from each section. To prevent loss of time, a certain period may be fixed for the report of each section.

We submit these suggestions to the Council of the Medical Association, from a belief that some such organization would increase its efficiency, and from a firm conviction that no one individual can do critical justice to the publications incessantly appearing in every department of medical science. A man may collect and crowd together all the facts that appear novel; the opinions that are most interesting; the labours of men most distinguished; but can he do more? Is his judgment of great

value out of the sphere of his own enquiries? Can he weigh rival claims; do justice, and not do injustice? Can he discover the first glimmering of a great truth from an unknown, unexpected source? Impossible.

More Associations should be immediately organized. There can be no doubt of their success when conducted in a proper, liberal spirit; and where they do not encroach on each other's territory. Much must depend on the accidental energy and talent of the medical men of a district; but, looking at the geographical position, we should say Associations should be formed at York, to move to Hull and Lincoln; at Newcastle-upon-Tyne, to take in Berwick and Durham; at Appleby or Carlisle; at Shrewsbury, to extend over North Wales and Cheshire. The metropolis is already occupied. The detached Branches retain all they can desire as independent Societies, and gain strength by union; their coalition into one body is necessary, and inevitable.

ON THE REPRODUCTIVE PROCESS IN PLANTS.

The author of the first article in the present volume is desirous of appending to it some views to which he has been led since that paper was written, regarding the nature of the reproductive process in the different classes of plants. The probability was there stated (p. 29.) that the *embryo* is really derived from the *pollen*, being in fact a development of one of its granules, which finds a nidus in the ovule prepared by the female system. This probability, which has now nearly attained certainty, joined to some observations recently published on the structure and development of the spores of the cryptogamia, enable us to frame a general expression of the process of reproduction in vegetables, which will be found, if we mistake not, to have an important bearing on our theory of the corresponding function in the animal kingdom.

Every vegetable, whether phanerogamous or cryptogamous, which possesses a reproductive system, forms vesicles of a peculiar character, which contain numerous minute granules moving spontaneously in the fluid of the cell. In the cryptogamia these vesicles, which are termed *spores*, when liberated from the *thecæ* in which they are developed, and placed in a situation fit for germination, undergo certain changes, presently to be described, which terminate in the formation of a new plant. In the phanerogamia, similar vesicles are formed in the *anthers*, and are called *pollen*; these, however, are incapable of producing new plants unless their development be assisted in its early stage by the parent. When the anthers rupture (and their dehiscence closely resembles that of the *thecæ* of cryptogamia) the pollen vesicles are conveyed upon the stigma; their outer envelope bursts, and the inner membrane is protruded in the form of long tubes which find their way down to the ovary, and there discharge into the ovule the granules contained in their fluid, one of which subsequently becomes the embryo of the new plant. Supplied by the nourishment afforded by the parent, the embryo continues its development, forming within the ovule its cotyledons, radicle, plumula, &c. and accumulating a store of nutriment for its temporary support when first called upon to maintain an independent existence. The spore of a cellular plant, on the contrary, when liberated from its parent, has to maintain an independent existence, developing its own organs and obtaining from without its supplies of nutriment. The primary changes which it undergoes are very similar to those occurring in pollen; the outer envelope is ruptured, and tubes are protruded from it; and it appears to be by the increased development of one of the contained granules that the first cell takes its origin, from which the whole plant is formed by the usual processes of growth. This first cell gives rise to others which coalesce at last into a frondose expansion, provided (in the higher orders) with radical filaments. This frondose expansion appears strictly analogous to the cotyledons of the phanerogamia; in the ferns it is merely temporary, and decays as soon as the stem and true leaves are developed; but in the lower orders it is permanent and constitutes the leaf-like portion of the general surface.

It will be seen, then, that the processes succeeding the first development of the reproductive vesicles closely correspond in all classes of plants; that in the cellu-

lares, the embryo destined from the first to maintain an independent existence, performs a number of changes strictly analogous to those which take place in the embryo of the flowering plant whilst still supported by its parent; that the arrest of development in the former causes to assume as their permanent form that which is temporary in the embryo of the higher classes;* and (what is most important) that the essential part of the reproductive process is supplied by the male, the female only affording the conditions necessary for the increased development of the embryo by receiving it into the ovule.

*Errata in the Article referred to:—*P. 13, line 21, for *bronchial* read *branchial*.—P. 14, line 15, from bottom, for *tillensia* read *tillandsia*.—P. 28, line 2 from bottom, for *capillary* read *carpellary*.

BAVARIAN UNIVERSITIES.

[We are indebted to a friend now travelling in Germany for the following short account of the regulations respecting students generally, and medical students more particularly, in the universities of Bavaria.]

The Professors of the German Universities are for the most part, if not all, appointed by government, which also lays down the rules for the management of the University. This interference of Government with the internal affairs of the University is found in different degrees in different countries. To take Bavaria and Austria for example:—in the former, the professors are left at liberty to conduct their own departments as they choose; in the latter, on the contrary, even the books employed must be prescribed by government. From all this it will be perceived that the Universities possess no such thing as *charters of privileges*.

1. *Of Matriculation.* Matriculation is an essential preliminary for the admission of students. For this purpose there is a Matriculation Committee, composed of the Rector of the University, the ministerial Commissary and the head of the police. Matriculation commences for the Winter Session on the 19th October, for the Summer Session, on the Monday after Easter. The matriculation books are open fourteen days at the most. Matriculation confers on the student the Academical burger-right, the right of residence at the University, of attendance on the teachers, and making use of all the means of instruction which the University offers.

2. *Of the Studies.* Every native, who comes to the university with the intention of preparing himself for a public office, for which a complete course of University study is required, is obliged, during his attendance at the university, in case he has not previously been at a Lyceum, to apply himself with zeal and industry, as well to the study of the general sciences, as to the study of the particular sciences of his future calling; and for this a period of five years is necessary, unless he can show that, at the end of the fourth year of his University course, he is in every respect perfectly prepared. In this case, the medical student can be admitted at the end of the fourth year of study to the *examen pro gradu*. In the medical *examen pro gradu*, proofs are required of a knowledge of natural science, chemistry, anthropology, and psychology; and, whoever has not certificates of attendance on these subjects, must have certificates from one or more members of the Faculty, testifying that he is known to them as a diligent and industrious student. It is allowed for natives who have passed from the gymnasium to the university, even at the first period of their university residence, to attend lectures introductory to their own department in addition to those on the general sciences: thus, students in medicine may attend general anatomy, comparative anatomy, general chemistry, pharmacy, natural history of the three kingdoms, and physiology, which are reckoned as introductory to the study of medicine. Candidates,

* The temporary formation and use of the cotyledons in the higher classes of plants contrasted with their permanency in the lower, corresponds in a very remarkable manner with the temporary appearance of *gills* (their analogous organs) in reptiles, birds, and mammalia.

however, are required, at the end of the first year, or at the latest at the end of the second, to undergo a strict public examination in the general departments, such as logic, general history, philology, mathematics, as also natural history and physics.

3. *Extent of the Courses.* The harvest vacation lasts from the 1st September to the 18th October, and the Easter vacation from the beginning of passion-week to the Monday after Easter week: the sessions, therefore, last about five months each. There is no interruption to the lectures except on Sundays and authorized holidays. Students must be punctual in being present at the commencement, and continue their attendance closely until the termination of the session. The student must enter his name for each of the courses of lectures he means to attend, immediately, or at the latest nine days after the commencement.

4. *Of the Discipline.* German students compose a separate *caste* of the community. They are under distinct laws and amenable to the jurisdiction of distinct officers: it is the University police alone which has power over them. On their admission, students receive a certificate from the university police, which must be renewed every session. This the student is required always to have by him, "in order that he may be able to prove by it, in every case, his connexion with the university; and he has himself to blame, if he, from neglect of this, be regarded and treated as if he were not a student." No student may, without leave from the rector, be more than one night absent from the university. Students in medicine or surgery who are present at a duel, as medical men, are visited with the same punishment as seconds. All students, on admission, must subscribe an obligation not to connect themselves with any political or other unauthorized society.

5. *Of the Fees.* The professor's honoraria are from nine to fourteen florins, (15s. to 24s.); and the degree comes to about sixty florins, (56l.)

GRADUATIONS IN THE UNIVERSITY OF EDINBURGH.

THE following is a list of the gentlemen, 105 in number, who received the degree of Doctor of Medicine at the University of Edinburgh, Tuesday, August 1; with the titles of their theses:

H. C. Barlow, on the causes and effects of disease, considered in reference to the moral constitution of man.

T. H. Burgess, on paralysis.

William Brown, on morphology.

W. H. Brownson, on the nature and treatment of gunshot wounds, and their consequences.

William Bayard, on Asiatic cholera.

Robert Butler, on apoplexy.

J. H. Bennett, on the physiology and pathology of the brain.

J. H. Branfoot, on the acquired perceptions of hearing.

J. O'B. M. Barry, on endocarditis.

James Barlas, on artificial pupil.

P. J. Barry, on rheumatism.

J. E. Cummins, on ophthalmia.

G. S. Carden, on temporary insanity.

George Cossar, on inguinal hernia.

Joseph Cartmell, on pseudo-pathological appearances.

J. R. Cormack, on air in the organs of circulation.

Francis Cooke, on pellagra.

T. W. Curtis, on the functions of the cæcum.

Michael Cormack, on asthma.

C. Chadwick, How far are secretion and nutrition dependent on nervous influence?

J. R. H. Couson, on the nature, symptoms, and treatment of bronchitis.

A. W. Campbell, on acute pericarditis, particularly as connected with rheumatism.

Thomas Crawford, on paralysis.

Alexander Duncan, on hernia.

R. H. Davidson, on the organs and physiology of digestion.

Hugo Donaldson, on bronchitis.

S. P. C. Evans, on equivocal, comparative, and human generation.

- James Edwards, on neuralgia.
 John Fortune, on acute hepatitis.
 J. W. Fullerton, on mortification.
 George Fraser, on the connexion of nervous energy with muscular contractility.
 Thomas Gordon, on erysipelas.
 F. W. Grant, on the nature, diagnosis, and treatment of aneurism; with a few remarks on the spontaneous suppression of hemorrhage.
 John Grant, What are the relative advantages of different trades and professions, as regards their compatibility with bodily health?
 Alexander Greig, on asphyxia.
 W. T. Geary, on the hydrated peroxide of iron as an antidote to arsenic.
 G. D. Gordon, on acute dysentery.
 John Houseman, on the morbid affections of old age.
 A. Hunter, on the pathology and treatment of granular disease of the kidney.
 S. Hunter, a practical treatise on ruptured urethra, produced by external violence.
 George Hood, on aneurism and its treatment.
 William Hilliard, some general considerations on phlebitis.
 Thomas Hayle, De necrosi.
 William Hey Hodgson, on apoplexy.
 E. Johnson, on the anatomy of the mammary gland.
 J. Johnston, on the tongue, pulse, and urine, as indications of health and disease.
 James Jopp, on angina pectoris.
 H. Kinglake, on the physiology of digestion.
 G. Kennion, a sketch of some of the principal diseases which are peculiar or incident to the puerperal state.
 W. D. Kingdon, on scirrhus.
 P. G. Kennedy, observations on the general pathology of diseases of the eye, with remarks on the characters which are diagnostic of the idiopathic and symptomatic ophthalmia.
 Adam Lyszeznski, on small-pox.
 S. D. Lees, on the pathology of the ear.
 T. H. Lowry, on tetanus.
 George Lund, on the use of the thyroid and thymus glands, and of the spleen and suprarenal capsules.
 George Aaron Martin, on scorbutus.
 W. H. Madden, on the connexion between the muscles and nervous system.
 L. McLean, an account of the bilious remittent fever, more particularly as it occurs in the West Indies.
 Alexander Ross Morton, on dysentery.
 H. Montgomery, on the origin and mode of formation of tubercles in the lungs.
 W. O. Mackenzie, on the distinctive characters, classes, and treatment of those ulcers (including hospital gangrene,) which have lately been prevalent in the British army and navy, on some foreign stations.
 George Parker May, on croup.
 James Mitchell, on scarlatina.
 John Morison, on apoplexy.
 J. L. Marsden, De kenothumia, or ennui.
 H. R. Melville, on the effects of climate and food on man.
 M. R. Mahony, some observations on aneurism and diseases of the heart, with case.
 G. S. Newbigging, on the effusion and organization of coagulable lymph.
 John O'Brien, on the hygiene of infants.
 J. C. Orgile, on the morbid effects occasionally induced by the operation of mercury.
 Eugene O'Neile, on vesicular emphysema.
 James H. Pring, on chorea.
 William Pringle, on phagedena gangrenosa.
 J. P. Phipps, on cold effusion in croup.
 Arthur Powell, on the causes of disease.
 Charles Ronayne, on cancer of the uterus.
 J. S. Reid, on variola.
 W. A. Reeves, on delirium tremens.
 E. C. Seaton, on the powers which move the blood.
 William Scott, observations upon pseudo-inflammatory affections.
 R. Skerrett, on malignant or Asiatic cholera.
 M. Satterthwaite, on pathological chemistry.

- George Smyth, on ascites.
 J. P. Shuman, on the pathology of dropsy.
 John Spowart, on tetanus.
 William Stanger, on cynanche trachealis.
 J. H. Shirreff, What advantage do we derive from auscultation in detecting pregnancy?
 J. C. Sortain, on the function of the cæcum.
 Thomas Stratton, on chronic rheumatism.
 T. H. Shute, on fever; being an enquiry into its intimate nature and causes.
 James Satchell, on the signs of pregnancy.
 William Scott, on scarlatina.
 Thomas R. Scott, on wounds of the thorax.
 Henry Hunt Stubb, on influenza.
 F. N. Slight, on injuries of the head from external violence.
 H. H. Turnbull, on venous inflammation.
 A. S. Thomson, observations on the influence of climate on the health and mortality of the inhabitants of the different regions of the globe.
 George F. Thomson, on croup.
 William Tatlock, on hydrocele.
 B. W. Wright, on the jungle fever of India.
 J. G. Wood, Under what circumstances is the operation of trephining to be had recourse to?
 J. Waters, on hypertrophy of the heart, and on that of the left ventricle in particular.
 J. W. Wallace, on hydrocele of the tunica vaginalis testis.
 James Balfour Wishart, on abortion.

It has been an object lately with the Senatus to improve the character of the theses, and with this view it was advertised that a gold medal would be given for the best production of this class. This plan appears to have been eminently successful; a large number of most excellent theses having been given in. On the graduation day, Sir C. Bell, as dean of the Faculty, announced that Dr. W. H. Madden had obtained the medal for the best essay on Cutaneous Absorption. Dr. J. H. Bennett another, for the best Report of Surgical Cases. Dr. J. R. Cormack, and Dr. A. S. Thomson, one each for their respective theses. He stated that the latter two prizes had been awarded to those dissertations which contained the greatest amount of original information; but that the theses of the following gentlemen had likewise been selected by the professors as worthy of being so distinguished:—Dr. H. C. Barlow, Dr. J. H. Bennett, Dr. W. H. Madden, Dr. G. S. Newbigging, Dr. C. Chadwick, Dr. M. Satterthwaite, Dr. T. W. Curtis, Dr. — Hunter, Dr. E. C. Seaton, Dr. J. O'Brien, M. Barry.

We understand that the prize essays were all extremely good; and, as one of the conditions was to print, we anticipate that the profession generally will benefit by the mass of experiments and original observations which we understand to have been displayed in the respective dissertations. The medals, much to the disappointment of those present, were not forthcoming; a circumstance owing, no doubt, to the anxiety of the Senatus that the die about to be made for the occasion, and the medals themselves, should be worthy of the successful competitors, and the alma mater to which they belong.

DR. LEWINS ON THE ADMINISTRATION OF COLCHICUM.

To the Editors of the British and Foreign Medical Review.

GENTLEMEN: I have read with much satisfaction the notice you were pleased to take, in the July Number of the British and Foreign Medical Review, of a late paper of mine on Colchicum. Your remark is most just in regard to the tendency,—I had almost said exclusive direction—of medical energy, of late years, to pathological and physiological investigations, to mislead the attention of practitioners from the careful study and just appreciation of the effect of individual remedies on the animal economy in health and disease. Indeed, I have often thought that our most eminent pathologists sometimes appear much more desirous of having an opportunity of dissecting the bodies of the dead, than anxious to make any practical application of their post-mortem examinations for the benefit of the living! Permit me to say a few words in

reply to your courteous and liberal criticism: in doing so, I am influenced solely by a desire to prosecute the investigation of the subject referred to, and not by any vain and idle wish to refute your opinion, or confirm my own where discrepancy exists between them.

Perhaps I expressed myself too strongly in regard to the mere *use* of colchicum by British practitioners; but I am still of opinion, from accurate information derived from private sources and from public medical charities, that it is much less extensively prescribed by a great proportion of the medical profession, than you, or that class of the profession with whom you are most familiar, imagine; and I adhere to my assertion that many, even of our best-informed physicians, are ignorant of the proper method of prescribing colchicum, as well as of the extent of its remedial efficacy. Need I produce other or more convincing proof of my averment than that contained in my original communication, where it is stated that a fatal dose had been lately administered by a learned physician in a public hospital? or that two drachms of the wine of the root, and half an ounce of a strong tincture of meadow-saffron seeds, are recommended as a proper dose by the late Dr. Duncan, unquestionably high authority on any subject connected with the *materia medica*.^{*} But further, Gentlemen, on consulting Dr. Barlow's work, to which you had the goodness to refer me, to prove "that he at least is fully aware of the principles on which the potent drug should be prescribed," I was not a little surprised to find that the writings even of that deservedly eminent physician afford proof of the accuracy of my opinion on the disputed point. For, although Dr. Barlow undoubtedly entertains enlightened views on the therapeutical value of colchicum, as well as on every other medical subject, still the following directions as to the mode of prescribing it are, I fear, fraught with danger. "When colchicum is to be employed," says he, "it may be given either in full doses, so as to purge actively, or in divided doses frequently repeated. One drachm, one drachm and a half, or two drachms of the tincture of the seeds, should be administered at night, and repeated, if necessary, next morning. This quantity will generally purge briskly, but, if it fail, a third dose the following night will be pretty sure to succeed; at least, I have seldom found it necessary to exceed these doses." I should imagine not: indeed, from my experiments on the effects of colchicum on individuals in health and labouring under disease, I am convinced that such a dose of tincture of the seeds cannot be given with safety, unless the spirituous tincture of the seeds used by Dr. Barlow be a weaker preparation than that which I prescribe.[†]

In reference to your reasonable remarks as to my idea of the efficacy of colchicum in fever, it is true that the symptoms of none of my cases were such as to authorize me to report them as typhus; but I do think, from my knowledge of the history of that type of fever denominated typhus, as it occurs in this place, that some of the cases referred to would have degenerated into it, unless for the salutary effect produced by colchicum on the functions of organs vitally important in the animal economy.

Perhaps, like most other men who are convinced that the medicinal virtue of a remedy has been unknown or under-rated, I may err on the opposite side, and attach an importance to the one under consideration which more extensive experience will not confirm; but it is surely reasonable to expect very decided benefit, *in all kinds of fever*, from the active but judicious early administration of a medicine endowed with the power which colchicum unquestionably possesses on the nervous system in general, and on the gastric and hepatic systems in particular, as well as on the skin and bowels.

Other avocations have hitherto prevented me from continuing my contributions on the *Physiological and Therapeutical Effects of Colchicum* to our own metropolitan

* See Edinburgh New Dispensatory, 12th Edition, p. 953.

† The preparation of colchicum which I use is made by Messrs. Duncan and Flockhart, of whose pharmaceutical skill and accuracy it is impossible to speak in too high terms. The seeds, previously "passed through a mill," are infused for six weeks in Spanish white wine (sherry), in the proportion of two ounces of the seeds to sixteen ounces of wine.

Medical Journal; but I hope, by and by, to appear again there as a labourer in this field, when I shall consider myself honoured by the criticism of the Editors of the British and Foreign Medical Review, who always do their duty in a temper, tone, and spirit which show that they rightly understand the delicate nature of their important and difficult vocation.

I have the honour to be, Gentlemen, very respectfully yours,

ROBERT LEWINS.

6, Quality street, Leith; 31st August, 1837.

BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.

THE seventh annual meeting of this most important and most flourishing Society took place this year at Liverpool. The General Committee met on Saturday the 9th September, but the proper business of the Association did not take place till Monday the 11th: the meetings were continued daily throughout the week. On the present occasion the meeting has been most successful, upwards of 1,700 members having been enrolled; a much greater number than were present at the Bristol meeting last year. The quantity of our other matter has only left us room for the names of the officers of the Medical Section, and for the titles of the principal papers read in this. We the less regret being unable to give a full report of the latter, as we shall have an opportunity, on the publication of the next volume of the Transactions of the Association, of noticing them more in detail.

Section E. ANATOMY AND MEDICINE.

President: William Clark, M.D. *Vice-Presidents:* James Carson, M.D. F.R.S., P. M. Roget, M.D. Sec. R.S., R. Bickersteth, Esq., R. T. Evanson, M.D. M.R.I.A. *Secretaries:* J. Carson, Jun. M.D., I. R. W. Voss, M.D. *Committee:* Neil Arnott, M.D. F.R.S., Richard Bright, M.D. F.R.S., Hugh Carlyle, M.B., James Copland, M.D. F.R.S., R. T. Evanson, M.D., R. Formby, M.D., A. B. Granville, M.D. F.R.S., John Houston, M.D. M.R.I.A., James Johnson, M.D., James Macartney, M.D. F.R.S., Sir J. Murray, M.D., John Mackintosh, M.D., C. H. Orpen, M.D., W. H. Porter, Esq., C. B. Williams, M.D. F.R.S., John Yelloly, M.D. F.R.S.

Papers read on Monday:—1. "Second Report of the Sub-Committee appointed to investigate the Motions and Sounds of the Heart;" by Dr. C. Williams. 2. "On the Physical and Chemical Characters of Expectoration in different Diseases of the Lungs, with some preliminary Remarks on the Albuminous Principles existing in the Blood;" by Mr. Brett.

Papers read on Tuesday:—1. "On the Cause of Death from a Blow on the Stomach, with Remarks on the best Means calculated to restore Animation suspended by such Accident;" by Dr. Calvert Holland. 2. "Observations on the Structure of the Sacrum in Man, and in some of the lower Classes of Animals;" by Hugh Carlyle, M.B. 3. "An experimental Investigation into the Glosso-pharyngeal, Pneumogastric, and Spinal Accessory Nerves;" by John Reid, M.D. 4. "An Account of the late Influenza at Bolton, in January, February, and March, 1837; accompanied by Statistical Observations;" by James Black, M.D.

Papers read on Wednesday:—1. "Experiments on the Connexion between Nerves and Muscles;" by Dr. W. Harris Madden. 2. "On the Order of Succession of the Motions of the Heart;" by O'Brien Bellingham, M.D. 3. "Observations on the Disease called Cocabæ by the Africans, or the Arabian Leprosy; the Ara-patta of the Caribbees of Guiana; the Radesyge of Northern Europe; all of which appear to be identical, &c. &c.;" by John Hancock, M.D.

Papers read on Thursday:—1. "Causes and Treatment of Curvatures of the Spine, with a Description of an Apparatus for the use of Persons affected with the Disease;" by S. Hare, Esq. 2. "An Inquiry into the Influence of the Mind on the Heart and other Organs in Health and Disease;" by Dr. C. Holland.

Papers read on Friday:—1. "Some Remarks on the Crania of the Mound Indians of the Interior of North America, as compared with the Crania of the South American Indians of Peru;" by Dr. Warren. 2. "On the Morbid Anatomical Appearances of

some Cases of Cholera;" by Dr. Mackintosh. 3. "On some Points in the Physiology of the Brain;" by Dr. Carson.

The next meeting of the Association takes place at Newcastle upon Tyne. The following are the officers appointed:—The Duke of Northumberland, president; the Earl of Durham, the Rev. Vernon Harcourt, and P. J. Selby, Esq. vice-presidents; Professor Peacock, and R. Murchison, Esq., general secretaries; Professor Phillips, assistant general secretary; John Adamson and W. Hutton, Esqs., of Newcastle, and Professor Johnstone, of Dublin University, local secretaries; J. Taylor, Esq., of London, general treasurer; the Rev. W. Turner, and Charles John Bigge, Esq., Newcastle, local treasurers.

MEDICAL MISSIONS TO CHINA.

By a notice inserted in the Advertising Sheet annexed to this Journal, it will be observed that the London Missionary Society is desirous of finding medical men adapted to execute its benevolent designs for the improvement of the vast and interesting population of China. To candidates properly qualified, such an undertaking must be highly attractive. In a scientific point of view, China presents a field of observation of great variety and extent, and hitherto but imperfectly explored. With slight exceptions, the state of medical knowledge and practice in this ancient country is extremely low and defective; and, notwithstanding their inordinate national vanity, many of the inhabitants are beginning to recognize the superiority of Europeans in this, as well as in many other departments. A competent endowment of medical science, and more especially a talent for operative and ophthalmic surgery, would be a sure passport to popularity and reputation under such circumstances; and we can hardly imagine a situation more calculated to excite and gratify the honorable ambition and philanthropic feelings of generous and adventurous youth.

MEDICAL STAFF OF THE QUEEN.

The following are the medical appointments which have been made since the commencement of the present reign:—

Physicians in Ordinary:—James Clark, M.D.; Sir Henry Hallford, Bart., M.D. G.C.H.; William Frederick Chambers, M.D. K.C.H.

Sergeant-Surgeons:—Sir Astley P. Cooper, Bart., G.C.H.; Sir Benjamin C. Brodie, Bart.; Robert Keate, Esq.

Physician to the Household:—James Clark, M.D.

Surgeon to the Household:—John Phillips, Esq.

Apothecary to the Person:—John Nussey, Esq., and Edward Duke Moore, Esq., jointly.

Apothecary to the Household:—John Nussey, Esq., and Charles Craddock, Esq., jointly.

Physicians Extraordinary:—Sir James M^cGrigor, Bart., M.D.; Henry Holland, M.D.; Peter Mere Latham, M.D.; Richard Bright, M.D.; Neil Arnott, M.D.

Surgeons Extraordinary:—Benjamin Travers, Esq.; Thomas Copeland, Esq.; Wm. Lawrence, Esq.; Henry Earle, Esq.; Richard Blagden, Esq.

Apothecaries Extraordinary:—Messrs. Merriman, of Kensington.

DEATH OF MR. SHERWOOD.

It is with sincere regret that we announce the death of Mr. SHERWOOD, the senior partner in the House of our very respectable and worthy Publishers in Paternoster row. This event took place on Thursday, the 7th September, at Mr. Sherwood's country house at Holloway, in consequence of a paralytic attack. Mr. Sherwood was in his sixty-first year, but possessed, up to the period of his illness, the vigour and activity of an earlier age. The great services which Mr. Sherwood rendered to medical literature in this country, by his enterprise as a publisher, well entitle him to a notice in

this journal. It is to him that we are entirely indebted for the publication of the *Cyclopædia of Practical Medicine*, recently completed, as well as of the *Cyclopædias of Anatomy and of Surgery*, now in progress. Of these works the House in Paternoster Row is, we believe, sole proprietors. Owing to the great success of the *Cyclopædia of Medicine*, Mr. Sherwood was induced to engage in the publication of the others; and also to become the proprietor and publisher of various medical works to a large extent, and greatly to the benefit of the profession. Although connected with the *British and Foreign Medical Review* in no other way than as Publisher, it is but justice to Mr. Sherwood to state, that he watched over its interests with the same zeal as if he had been Proprietor: and the Editors have great pleasure in bearing testimony to the marked attention, activity, liberality, and kindness which he uniformly displayed, during the constant intercourse which they had with him from the commencement of the *Cyclopædia of Medicine*, in 1831, up to the period immediately preceding his death. In his private and domestic relations Mr. Sherwood was most exemplary: he was greatly respected and beloved; and he is regretted by his surviving family and friends as so good and kind-hearted a man deserved to be regretted.

BOOKS RECEIVED FOR REVIEW.

ENGLISH.

1. *The American Medical Library and Intelligencer; a concentrated Record of Medical Science and Literature.* Edited by Robley Dunglison, M.D., Professor of the Institutes of Medicine, &c. in Jefferson College, Philadelphia, &c. Vol. I. No. I.—VIII. Published Semi-monthly.—Philadelphia, 1837. 8vo. Price ten dollars a year.

2. *The Medical Student; or, Aids to the Study of Medicine: including a Glossary of the Terms of Science, and of the Mode of Prescribing; Bibliographical Notices of Medical Works, &c.* By R. Dunglison, M.D., Professor, &c.—Philadelphia, 1837. 8vo. pp. 323.

3. *An Examination of Phrenology; in two Lectures delivered to the Students of Columbia College.* By Th. Sewall, M.D., Professor of Anatomy and Physiology.—Washington, 1837. 8vo. pp. 67; with 8 Plates.

4. *Reports on the Botany, Zoology, Mineralogy, and Geology of the State of New York, from official Surveys.* Published by Government.—Albany, 1837. 8vo. pp. 212.

5. *Address to the Medical Graduates of the Jefferson Medical College.* Delivered March 11, 1837, by R. Dunglison, M.D., Professor of the Institutes of Medicine, &c.—Philadelphia, 1837. 8vo. pp. 20.

6. *Oration on the Guidance of a sound Philosophical Spirit in the Investigation of Medical Science.* Read before the Cincinnati Medical Society, January, 1837, by J. P. Harrison, M.D. Professor of Materia Med.—Cincinnati, 1837. 8vo. pp. 22.

7. *Plates of the Cerebro-Spinal Nerves, with References; for the use of Medical Students.* By P. B. Goddard, M.D., Professor of Anatomy in the University of

Pennsylvania.—Philadelphia, 1837. 4to. pp. 60; 12 Plates.

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